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The Massachusetts Medical Society.

MEETING OF THE SECTION OF TUBERCULOSIS, JUNE 12, 1917.

WHEN IS THE DIAGNOSIS OF TUBERCULOSIS WITHOUT POSITIVE SPUTUM JUSTIFIED?

BY DAVID R. LYMAN, M.D., WALLINGFORD, CONN.,

Superintendent, Gaylord Farm Sanatorium; Member Connecticut Tuberculosis Commission.

THIRTY-FIVE years ago the discovery of the tubercle bacillus fired the world with the hope that the cure for consumption would soon be found. Today, after exhausting our ingenuity in producing sera and vaccines, and after having experimented with almost every drug in the pharmacopeia in turn, we stand, as regards the treatment of tuberculosis, just where we stood then. We know that the hygienic-dietetic régime, whether carried out in a sanatorium or at home, will give us excellent immediate results, provided we can get our cases in the early stages. The years have but served to intensify the insistent demand for an early diagnosis of tuberculosis, but I regret to say that they have not brought the response to this demand which we had a right to expect.

The greatest stumbling-block in our way has been the evasive tubercle bacillus itself. One is so sure of his ground when the microscope reveals this, and there can be so many flaws suggested as to one's diagnosis when it does not! And yet, if we want an early diagnosis—as we all agree we do—it becomes necessary for us practically to disregard the absence of the bacillus in reaching our conclusions, or at least to grant that its presence in the sputum is not needed for a correct diagnosis. We must always remember that tubercle bacilli are found in the sputum only after there has been caseation and destruction of tissue in the lung, and where, speaking strictly, the disease can no longer be regarded as truly incipient.

In considering when a diagnosis without positive sputum is justified, it might be well to try to arrive at some idea of how often the diagnosis must be so made. With this in view, I have gone over the laboratory records of 1638 cases discharged from Gaylord Farm in the past twelve years. These show 1076 in which the sputum was positive, and 562, or just over one-third, with no bacilli. I do not claim that these figures give accurately the incidence of tuberculosis without positive sputum, for I know that in some of them the question of final diagnosis would be difficult to establish. The proportion would, however, be but small. In the first place, the 562 negative cases, instead of being all, or even chiefly, "incipient" or "suspects," were divided as follows: incipient, 244; moderately advanced, 297; far advanced, 21; more than half showing well-developed lung signs. The probability of correct diagnosis in the series is further strengthened by the fact that in 51 cases there was tuberculosis elsewhere; 18 had pleurisy with effusion, 126 had hemorrhage,—and these included only frank hemorrhage, and not blood-streaked sputum,—97 gave positive tuberculin reactions to doses ranging from 1 to 7 mg. of old tuberculin given subcutaneously, and 76 died from tuberculosis after discharge. We thus have the diagnosis confirmed in 368 of our 562 cases. When we take into consideration the fact that the large majority of these cases had been diagnosed by their own physicians or a consultant before coming to us, it would seem that we were entitled to claim a fair degree of accuracy for the diagnosis, even though one-third of all our cases showed negative sputum.

The study of the records of those having positive findings emphasizes again the futility of depending on sputum for diagnosis. I would say that our laboratory routine has been to make daily examinations for at least a week in all cases with negative sputum, and to re-examine monthly in all cases. We had 1076 cases with positive sputum. In 213 of these the sputum was negative occasionally; in 56 it was negative as often as positive; in 42 negative twice for each positive finding; in 63 negative three times for each positive finding; in 70 negative five times; and in 39 negative ten times for each positive finding!

We thus have of our 1076 positive cases, 483 whose sputum at times would have failed to support our diagnosis, and of our series of 1638 cases only 593 whose sputum was positive at *all* examinations. Please bear in mind that these cases are classified approximately one-half as "moderately advanced," one-fourth "far advanced," and one-fourth "incipient," and you will readily see how very important it is for us to cease giving too great prominence to negative sputum findings if we are to make any advance in our early diagnosis of this disease. I do not mean by this that we should simply disregard *one* negative examination, but that if the history, symptoms and signs point to tuberculosis, we should make our diagnosis in the face of *persistent* negative sputum. In one case in our series, the bacilli were found at the 38th examination, and in several there were over twenty negative results before they appeared. In 172 cases the sputum was negative from three to ten times for every positive result. With only 593 out of 1638 cases showing constantly positive sputum, it is evident that a negative sputum is not sufficient ground for excluding tuberculosis.

What are the conditions under which we are justified in making a diagnosis of pulmonary tuberculosis in the face of negative sputum findings? The data necessary for this purpose may be gathered: first, from the history of the case; second, from the symptoms presented; and, third, from the physical signs.

First, History. Few practitioners seem to realize the supreme importance of an accurate history, both as to person and family, in tuberculosis. It is at once the best guide to a correct diagnosis, and the most difficult to obtain. When we realize that tuberculosis is a disease of childhood, often lying latent for long periods, to reawaken under the strain of adult life, we begin to see how direct a bearing the past history of the individual has upon his present condition.

Family History. The importance of the family history is generally conceded, and yet it is taken in the most casual way, even in most institutions. It is not enough to ask whether father, mother, sisters, brothers, etc., had tuberculosis. You must remember that tuberculosis very often passes undiagnosed, and in cases where you are in doubt, you must question very closely as to the presence of chronic cough, bronchitis, asthma, catarrh of the lungs or hemorrhage, as well as fistula, and other forms of tuberculosis among the family group. Also bear in mind that the importance of any such history is in exact ratio with the extent to which your patient was associated in childhood with the relatives so affected. The question as to whether anyone with a chronic cough lived at home when the patient was a child, often elicits definite history of exposure through some friend of the family or connection who would not have been thought of under the usual line of questioning. The family history is, of course, insufficient in itself for a diagnosis, but he is a very brave (or foolish) physician who will assure the patient that he absolutely has no tuberculosis, in the face of a strong family history or a definite history of exposure in childhood.

Personal History. The life history of the patient should be thoroughly gone into, with especial attention to previous illness. And again, let me caution against too casual questioning. It does not help your practice to have your patients sent back from a sanatorium as nontuberculous because (as in one case under my observation) the hemorrhage on which you based your diagnosis proved, on questioning, to be no more than streaked sputum following a nosebleed.

It is common for tuberculosis to present frequent, though slight relapses, and a careful past history often explains present conditions. History of persistent, enlarged cervical or axillary glands, or of fistula in ano, or other tuberculous foci are, of course, of prime importance. Next to these the story of previous acute pleurisies is the most significant. Primary pleurisies always imply tuberculosis unless you can definitely prove them otherwise. Being "subject to colds" is another suggestive story. Usually the patient states that he has had "bronchial catarrh" or "grippe" every winter, with a cough which "hung on." Be chary of joining with the patient in placidly accepting these diagnoses! Of much value also is the history of having been frequently "run down" and having had to go to the country for a month or two every few years.

A history of "malaria" always requires careful analysis. This has been for years the favorite standby of the careless diagnostician, and more cases of tuberculosis have been kept in false security until too late for treatment by the diagnosis of "malaria" than in any other manner. Careful questioning often reveals the absence of any fever and ague or of any definite periodicity of the attacks, leaving a story of periods of loss of weight and strength, slight fever and malaise recurring almost yearly and connecting most logically with the present signs and symptoms.

Hemorrhage from the lungs always means tuberculosis (except when due to carcinoma or cardiac disease), and you may feel sure of giving your patient his best chance if you base your diagnosis on it even without other signs or symptoms. This has been stated so often that it would seem needless repetition. I am, however, constantly seeing cases with a history of hemorrhage one or two years previously which the physician has failed to recognize until advanced disease developed, because he did not know that the hemorrhage itself was ample ground on which to base his diagnosis.

Second, Symptoms. The chain of symptoms which are of greatest importance in diagnosing early tuberculosis are: persistently rapid pulse, afternoon or evening rise of temperature, loss of weight, loss of strength, and persistent cough. It seems hardly necessary to go into details as to the presence of these and their value. In the persistence of any two of these without explainable cause, tuberculosis must be considered. Where the diagnosis rests almost entirely on symptoms the physician must be very careful to exclude other common causes, especially if there be a positive family history to give a background for the diagnosis. One must remember that overwork and dissipation produce loss of weight and strength; that chlorosis, hyperthyroidism and neurotic conditions may show the rapid pulse; that women at the menstrual period often show a similar rise of temperature, as well as of pulse; that malaria may be responsible for such a chain of symptoms; and that there is such a disease as syphilis. Latent syphilis is difficult to detect, and Wassermanns are not readily obtainable in private practice. In doing routine Wassermanns on our patients for the last two years, Dr. Ford found between 5 and 6% showing a reaction of three or four plus, which plainly shows the necessity of keeping this complication in mind.

If only the physician would realize the value of accurate records of temperature and pulse in his doubtful cases, we should not stand as a profession under the indictment of ignorance concerning the chief disease to which mankind is subject; but when out of 1940 physicians consulted by the last 1000 of our patients only 13.4% saw fit to take the temperature even once, we must admit that we give the public just cause for criticism. The patient should be taught to keep a record at least *ev. 4 h.* for a week, and the doctor should realize that persistent or frequent afternoon or evening rises to 99.5 or over are strong evidence of the existence of tubercle, unless he can otherwise explain their presence to his own entire satisfaction.

Third, Physical Signs. The physical signs of early tuberculosis are usually very slight,—too slight to give in themselves a basis for final diagnosis, and a positive diagnosis should often be made when there are no signs present in the chest. It is not at all rare to see hemorrhages in patients whose chests are apparently clear, or to find tubercle bacilli in the sputum from such a case. We must remember that one can get bacilli and even hemorrhages from a very small focus, and that the lung is a deep-seated organ and covered with tissues such as bone, fat, skin, and muscle, each with a different capacity for transmission of sound. As a result it is not only possible for tuberculosis to exist undetected in the deeper portions of the lung, but, as all of us who have done much lung work know to our sorrow, it is possible for fairly large cavities to be situated in the upper lobes of the lung and yet give no sign on examination even in expert hands. Modern methods of physical diagnosis are not sufficiently accurate to justify our stating dogmatically that a chest is clear if the history or symptoms are at all suggestive of tuberculosis. It is the location and persistence of the sounds rather than their character which must be our guide as to their probable tuberculous origin. All inflammatory conditions of the lung—whether due to infection or chemical or mechanical irritants—produce the signs of bronchitis. In grippe or in bronchitis following a catarrhal cold, or due to dusts or other irritants, these signs are scattered generally throughout both sides. In tuberculosis, on the contrary, the invasion, instead of being general, is along the lymphatic system supplying a lobe or a lobule or group of lobules, and the resulting bronchitis is localized. Persistent signs of localized bronchitis or persistent local impairment of note and breath sounds are to be considered as tuberculous when appearing in the apices of either the upper or lower lobes. On the other hand, the x-ray has shown us that tuberculosis rarely is present in the lower lobes alone; and that most of those cases showing marked impairment of note and breathing, with coarse râles over the right or left lower lobe, with the remainder of the chest clear, are probably due to non-tuberculous infections.

In determining the nature of a lung lesion, the history is of the greatest value. A local bronchitis, found with a history of a recent grippe or pneumonia, requires to be kept under observation for diagnosis. When there has been no history of recent acute respiratory trouble, the diagnosis of tuberculosis is usually correct; and if the case gives a history of exposure and at least two of the cardinal symptoms of tuberculosis (rapid pulse, afternoon temperature, loss of weight, malaise, chronic cough), a positive diagnosis should be made regardless of even the presence or absence of sputum.

It is necessary, however, to make the distinction between clinical and pathological tuberculosis. If during an examination for insurance or other purposes you find a slight dullness with impaired breathing and even slight moisture after cough at one apex, there is no need to make an invalid of the patient provided he has no symptoms. It is sufficient to tell him that there is latent trouble present and to advise him to have his chest examined periodically, to be sure he does not show signs of spreading.

The final diagnosis of incipient pulmonary tuberculosis is one of the most difficult tasks which confront the general practitioner. It requires careful history, a temperature and pulse record taken at least every four hours for several days, repeated chest examinations and often the use of tuberculin test and the x-ray to find or exclude tuberculosis. The sputum also should be examined daily for at least a week. That all this is difficult to obtain in private practice does not absolve the general practitioner from his responsibility. With signs and symptoms suggesting tuberculosis it is his duty to see that the case is carried through to a final diagnosis, and he should certainly not fail (for his own protection if for no other reason) to advise the patient of the necessity for such a final diagnosis.

If unable to make a diagnosis that would satisfy you as to your own case, you should send the patient to a hospital or sanatorium where such diagnosis can be made. It would add to his regard for you and often mean life itself for him. I feel strongly that the rules governing admission of patients to our state and municipal sanatoria should be so drawn as to provide for the admission there of cases for diagnosis. The physicians would then have a place available where they could secure the temperature and pulse records, animal inoculations, tuberculin tests, x-ray and repeated physical examinations, all of which are often necessary for the diagnosis of incipient pulmonary tuberculosis.

Where such facilities are not available the physician can do no better than follow the teachings of that great physician of a former generation, Dr. Henry I. Bowditch: "If with the history of abnormal symptoms lasting for a longer or shorter space of time, upon examination you find anything out of the normal at one or the other apex, watch your patient closely, for the chances are that there is or has been tubercular trouble there."

I am sorry to say that the profession, as a whole, does not begin to realize the need of altering its attitude toward the diagnosis of tuberculosis. There is no question that the sanatorium men, working as we do always along one line, make many mistakes on the side of diagnosing tuberculosis in doubtful cases, when it does not exist, but we have learned in recent years to subject such cases to searching study after they enter the sanatorium before we charge a positive diagnosis up against them. Bear in mind, however, that such mistakes are made on the side of safety and result in the patient taking a much-needed rest, rebuilding his general health and acquiring much valuable knowledge as to personal and public hygiene. Erring on this side, we do but little harm and considerable incidental good. Many of the general practitioners persist in following the opposite course, and in so doing, work infinite harm to their patients, to themselves, and to the profession. There is never a time when an incipient case cannot find admission to our sanatorium with but brief delay. There is rarely a time when an advanced case can find such relief save after a wait of several weeks. When such cases come with a history of having been treated for bronchitis or malaria or catarrh, often for one or two years; when they have consulted their physician faithfully and relied on him implicitly and then find that they have advanced and incurable tuberculosis, do you wonder that they and their friends are bitter against us? The history of the diagnosis of our last one thousand cases at Gaylord Farm, showed that they had consulted 1940 physicians before coming to us. Of these 10 2-10% made no examination or test of any kind, but merely prescribed and collected their fee. Do you wonder, under such conditions, that the public holds us to blame for the failure of the campaign to secure early diagnosis of tuberculosis? Our attitude towards this most common of all diseases has done more to promote the sale of patent medicines and the prosperity of the chiropractor and kindred cults than any other influence. We shall not alter this until we begin to give our patients the benefit of the doubt and make our diagnoses without waiting for the positive sputum of more advanced disease. I have no patience with the growing tendency to chide the busy physician because he has diagnosed as tuberculosis some case of streptothricosis or other chronic lung disease. I only wish the general practitioner were less afraid of making such errors, for then he would abandon the Micawber-like attitude with which he watches the gradual development of chronic chest lesions. There is no more excuse for letting the average case of pulmonary tuberculosis reach an advanced stage without correct diagnosis, than there is for waiting for rupture and ensuing peritonitis before diagnosing appendicitis, but fortunately for the human race there is no specific germ associated with appendicitis.

Diagnosis of Tuberculosis in Children.

By Henry D. Chadwick, M.D., Westfield, Mass.,
and
Roy Morgan, M.D., Westfield, Mass.

Only a few years ago tuberculosis was thought to be a disease of early adult life. Now we realize that it must be considered as a serious menace in childhood. Because it is usually a chronic and not an acute disease like measles and scarlet fever, it did not attract so much attention.

A study of the death rate from tuberculosis at different age periods shows these significant facts: The death rate of children under five is 127 per 100,000; for the next decade it drops to 36 and then steadily increases between fifteen to nineteen years to 115, and thereafter rises steadily until it reaches its maximum of 228 at the age period of thirty-five to forty-four.

In a general way the course of the disease has three distinct phases, according to the age of the patient: general, glandular and pulmonary. In infants and very young children it seems to run the course of an acute general infection with very little tendency to localize, and death usually follows from meningitis and miliary tuberculosis. For the age period between five and fifteen years, tuberculosis seems to be a localized glandular disease. Resistance to invasion, or the power of the tissue to react in the presence of tubercle bacilli, has been acquired since infancy and the course of the disease is radically different. The bacilli become walled off more or less effectively by a growth of fibrous tissue. The bacilli, therefore, do not have the chance to multiply and spread throughout the body. They lodge in the lymphatic glands and only occasionally reach the bones. Enlarged glands or swelling of the joints are the immediate results. The symptoms vary with the location of the focus of disease and this stage of tuberculosis is of a chronic type. It might well be called the incubation period for what so often follows. From fifteen to forty-five years of age, pulmonary disease is the usual form. We have reason to believe that the lungs become affected by the spread of the bacilli from broken-down tubercle in the bronchial glands. A new infection from external sources among adults is probably rare. Tuberculin tests show that from 50% to 70% of all children are infected with tuberculosis before they are fifteen years old, and in the city-dwellers the infection is almost universal. Where resistance is good the infection may not produce apparent symptoms. In fact, in the greater number of infected children the bacilli are buried so thoroughly in fibrous tissue that they never produce disease. If this were not so the death rate from tuberculosis of one in ten would be decidedly greater.

These preliminary observations are made because the diagnosis of tuberculosis in children must be based on an understanding of the pathology of the disease. The symptoms of tuberculosis in children, with its tendency to be of a glandular type, must necessarily be different from the symptoms in pulmonary disease of the adult. The diagnosis of early tuberculosis in the child requires a different point of view. The emphasis must be laid on the evidence of toxemia produced by tuberculin. It is the case where the child is passing from the quiescent condition of infection to the stage of disease that we are considering. This, in fact, is the true incipient stage of tuberculosis. It is only in advanced disease that pulmonary symptoms are pronounced.

The symptoms of an overdose of tuberculin are malaise, exhaustion, a rise in temperature; and vague pains in different parts of the body are common.

The child with incipient tuberculosis is easily fatigued, cannot keep pace with the normal child in play or school. When they make the attempt they soon become tired out. They are less energetic in all their activities and it takes them longer to recuperate. They often are nervous and irritable. The normal child may go to bed thoroughly tired, but will be completely rested and as fresh and active as ever in the morning. Children with developing tubercle, however, are much exhausted after less exertion and they will wake up tired and languid. If they continue in school or their exercise is not restricted, a low grade of fever will develop. This will be discovered only when the temperature is taken in the afternoon. It is often variable and transitory. Lack of appetite for breakfast is significant of tuberculosis. Both in children and in adults we have found this statement true. A healthy child is always hungry and ready for meals. Loss of weight or failure to gain is a frequent condition in early tuberculosis.

We have then these common, constitutional symptoms of active tubercle, namely: malaise or weakness, loss of weight or failure to gain, and fever. They are all caused by the absorption of tuberculin and are present in tuberculous disease, regardless of whether the focus is in the chest, lymphatic glands elsewhere or in the bones. The thoracic glands are the most frequently affected and are the ones we are now considering.

Local symptoms are cough, hoarseness, dyspnoea or shortness of breath and hemoptysis. They are produced by the pressure of the large congested glands on the neighboring structures. The sputum which is raised, occasionally contains streaks of blood and comes from the tissues about the tuberculous focus.

To obtain data helpful in diagnosis we analyzed the histories of nearly two hundred children that have been in our care at the sanatorium. The family history was positive in 66%. A tuberculous mother is the most dangerous member of the family, then in order is the father, then a sister to other sisters, and a brother to other brothers. A negative family history is of little significance, but if positive and shows intimate association it is evidence that must be given great weight in considering a given case.

Cough was present in 77%. This symptom is liable to be misleading, as it may be caused by so many other conditions besides tuberculosis. The more common are colds, bronchitis, influenza, enlarged or diseased tonsils or adenoid growth.

Weakness was noted in 54%. This, in our opinion, is the first and will be found the most frequent symptom of onset if children are carefully studied. It may be exhibited as undue fatigue, morning tire or nervous irritability.

Forty-six per cent. had poor appetites and digestive disturbances, and coincides with the same percentage reported as having lost weight. That this is due to toxemia is shown by the fact that these children, except when they have advanced disease, recover normal appetites and gain weight as soon as their play and exercise are restricted and suitable hours for rest and sleep are made a part of their daily routine.

Thirty-eight per cent. were reported to have had night sweats, but in our personal experience this is a rare condition except in advanced tuberculosis, and we do not attach much importance to the statement of the parents. Probably in most instances the sweating was caused by the use of too much bed clothing, or the child sleeping in a poorly ventilated room.

Fever was noted in 36% before admission. Careful observation, no doubt, would have found elevated temperatures at times in a much larger number. Nearly all of the sanatorium children have periods when the temperature ranges from 99 to 100. A temperature above 101 except in advanced disease is unusual, and when it occurs is nearly always due to some complications, such as tonsillitis, indigestion or other disease. Carious teeth and rickets will sometimes produce the same type of fever as does tuberculosis.

Pain was present in 35%. Our children often speak of having vague pains in the chest, but definite pleuritis is rarely found in early cases. Other observers have noted that tuberculous children often complain of pains in the legs. These pains are ill defined and are similar to the discomfort complained of by individuals who experience a sharp reaction from the tuberculin test.

Chills were reported in 29%. This would seem to us a too high figure. Except in cases that are far advanced we do not meet with this symptom in the sanatorium.

Hemoptysis. Blood was noted in the sputum in 10% of our cases. In nearly all this amounted to but little more than streaks. Occasionally a child would raise a little pure blood, but a frank hemoptysis has never occurred in our experience in a child under thirteen years of age. Bleeding from the posterior nares and from the hypertrophied adenoid tissue, which is so frequently found in a child's throat, may be a source of streaked sputum and should be excluded.

Sputum: This was positive in 19 out of 210 cases, or approximately 9%. It is interesting to note that of these 19 positive cases only 5 were discharged as apparently arrested and 2 as improved. This indicates that a child with open tuberculosis in its pulmonary form has a very bad prognosis.

Weight: About two-thirds of the children were below normal weight for their age. These averaged ten pounds under weight. A little less than one-third were normal in weight or above normal. This shows that the appearance of a child is not a safe criterion upon which to base an opinion as to the presence or absence of early tuberculosis.

Physical Findings. In 156 cases, 111 showed evidence of consolidation confined to one or both apices, and this usually extends downward into the interscapular space. This corroborates the x-ray evidence that the bronchial glands are first involved. In many of these cases no dullness can be made out anteriorly, even if it is pronounced in the back. There were but four cases in which the disease was confined to the bases.

Râles were found in 48, which was a little less than one-third of the cases. No râles, but other abnormal auscultatory signs, were present in 37%. In 69 others, no râles or other respiratory changes were found. Twenty-one of these showed a marked D'Espine.

It is difficult to formulate minimum standards for the diagnosis of tuberculosis in children. To do that we should have some definite landmarks to determine when infection in the child crosses the border line and becomes disease. As infection in city children is almost universal, we should be on the alert for the characteristic symptoms of tuberculin absorption and not wait for destructive changes in the lungs before instituting suitable treatment. We think the standard of diagnosis set down by the Committee of the National Association is inadequate, and that they have based their views not so much on diseased children as they have on the manifestations of tuberculosis in adults. They attach too much importance to the presence or absence of râles and to the results of tuberculin tests.

The presence of râles at the apices is usually due to tuberculosis, but they are not pathognomonic, as they may be present in influenza or other infection. Râles were present in only one-third of our cases. We should not wait for disease to advance until the pulmonary tissue is sufficiently infiltrated or congested to produce râles, if by a study of the child's constitutional symptoms we can determine with reasonable certainty that active disease is present in the thoracic glands. We must remember that the tuberculin test is positive in healed lesions as well as in active disease. The subcutaneous test should be used with caution. Nearly all children react to the von Pirquet test by the time they are fifteen years old, therefore, tuberculin tests are of but little value in a given case.

The following are two illustrative cases:

Two children of a man who recently died at the Westfield State Sanatorium, were brought to the institution for examination. Their father had died in the sanatorium a few months after he had been admitted as an advanced, progressive case. He raised a large amount of sputum in which the bacilli were numerous. For six months prior to his admission he had been confined to his home. Being very fond of his children he liked to have them near him and frequently fondled and kissed them. This was in the summer vacation so the children were subjected to prolonged and intimate exposure. The oldest girl, of nine years, gave the following history. She had had a severe cough with slight expectoration for a considerable time. Six weeks before her examination she had been operated on for enlarged tonsils and adenoids. This had no effect in relieving the cough. The child was nervous and irritable. She did not take her usual interest in play but preferred to lie about the house. Rarely she went out with other children, but would soon come back to lie down and rest. At frequent intervals she would have a fever ranging up to 100 for a few days at a time. She had raised a little blood two or three weeks before. Her appetite was poor. Physical examination showed nothing abnormal except a slight dullness at the left apex.

The other girl gave the same history except that she had raised no blood and had had no operation. Her tonsils were small and there was no indication of adenoids. Physical examination showed dullness and roughened breathing at both apices.

The mother was told to keep a temperature record and bring the children back three weeks later. The charts then showed frequent elevations of temperature to 99.4 and 99.6. The symptoms had not decreased in severity. The physical findings were more marked than before. We made a positive diagnosis of tuberculosis in each case and recommended the admission of both children to the sanatorium.

We cannot prove that these diagnoses were correct beyond the possibility of doubt, but we feel sure that they were justified by the history of exposure, constitutional symptoms and evidence of consolidation in the lungs. Why should we wait for râles to develop or for a tuberculin test in these cases before instituting treatment?

To summarize the essentials for a minimum standard necessary in the diagnosis of tuberculosis in children, we would emphasize the importance of symptoms indicating tuberculin absorption, namely: weakness, undue fatigue, fever, poor appetite, failure to gain, or loss of weight, and nervous irritability. The local symptoms are cough, hoarseness and occasionally streaked sputum. The usual physical signs are dullness in the interscapular region radiating into the apices at the back, frequently not elicited in front. There may or may not be changes in the respiratory sounds. Râles may or may not be present. Symptoms both constitutional and local, together with a history of exposure, are to be given greater weight in making a diagnosis of active tuberculosis than the presence or absence of physical signs. Percussion is more important than auscultation. We must, however, bear in mind that a thickened area in the lung or region of the bronchial glands does not in itself mean active tuberculosis. It may be a healed lesion that needs no treatment. Such thickening may also be caused by other diseases than tuberculosis.

The child showing constitutional symptoms, even without local signs of disease in the chest, should be considered suspicious, kept under careful observation and hygienic treatment instituted in the home. The case with signs in the chest, without constitutional symptoms, indicates an old inactive infection that needs no treatment. Individualization and common sense must be used to weigh all the factors in the case, and, with experience as a guide, few errors in diagnosis will be made.

WHAT SHOULD CONSTITUTE REPORTABLE TUBERCULOSIS.

By Francis George Curtis, M.D., Newton, Mass.,
Newton Board of Health.

I think that it is safe to say that, under present conditions, tuberculosis causes more trouble to local boards of health and is less capable of satisfactory handling by them, than any disease with which they are concerned.

The reasons for this are perfectly well known to men actively engaged in local public health work, although they may not be so evident to others and are as follows:

First, the lack of any definite agreement among local boards as to what does constitute reportable tuberculosis; second, the passage by the Legislature, for reasons undoubtedly known to itself, although they have not been made manifest to the ordinary observer, of certain statutes dealing with tuberculosis alone and the creation of a special state board in regard to it, and finally, as a result of these laws, the establishment of certain volunteer and amateur associations, ostensibly for the prevention of the spread of tuberculosis and the assistance of the local boards, but which, as at present managed, tend more to interfere with the local boards and lessen their authority than to do anything else.

Personally, I can see no more reason for the existence of a special state department for tuberculosis and of local antituberculosis associations, as they are at present managed, than I can for a special state department for typhoid fever or local anti-scarlet fever associations, and I believe that their existence has more to do with the present unsatisfactory situation in regard to caring for persons who are ill with tuberculosis than any other factors.

I believe that at the present time and under our present laws, it rests entirely within the power of local boards of health to declare what shall constitute tuberculosis within the meaning of the law and that their declaration will stand. I believe, further, that the declaration should be that, from the standpoint of the local boards of health, no person should be considered to have tuberculosis and be so recorded on the books of the department until he falls within the category of a person ill with a disease dangerous to the public health. He cannot fall within that category until his condition is such that he is capable, potentially at least, of transmitting the disease to others and, as our present knowledge teaches us that he can do this only by means of the bacilli, it follows that a person should not be considered to have tuberculosis until tubercle bacilli have been shown to be present in his sputum.

Having stated my proposition it is now up to me to show my reasons for making it, to defend it against possible attack and to show that it does not necessarily weaken any defense against tuberculosis which we may now possess.

Certain diseases are known to Massachusetts law by the term "diseases dangerous to the public health" and the supervision of practically everything in regard to these diseases is given by law to the local board of health of the community in which they may occur.

The law does not specify what diseases are dangerous to the public health but gives to the State Department of Health the power to declare from time to time what ones shall be so considered. After it has made this declaration, the direct power of the State Department of Health over these diseases apparently ceases, and from that time on the authority of the local boards of health over them becomes practically absolute. They can decide what to do with persons ill with such diseases, decide whether or not they shall be restrained, how long the restraint shall last, etc.

I cannot find any specific statement in the statutes as to the requirements for qualifying as a disease dangerous to the public health, but by common consent and usage there are certain characteristics which belong to practically all diseases included in the list, and chief of these is the liability of transmission from person to person, by direct contact or through an intermediate host.

The State Department of Health, acting under the authority of the statute, has published a list of diseases dangerous to the public health, and tuberculosis in all its forms is included in the list.

The duty of the local board of health, when a disease dangerous to the public health makes its appearance in the community under its jurisdiction, is defined by the statute, rather broadly, it is true, but it is, nevertheless, defined.

Sect. 36 of Chap. 75, R. L., as amended by St. 1906, Chap. 365, Sect. 1, and further amended by St. 1907, Chap. 445, provides that if a disease which is dangerous to the public health exists in a town, the selectmen and the board of health shall use all possible care to prevent the spread of infection. Other sections of the same law give the local boards of health the right to remove persons ill with such diseases to a hospital, to establish quarantine, to employ nurses, etc.

In order that the local board may have knowledge of the presence of such diseases so as to be able to take these measures, Sect. 50 of Chap. 75, R. L., as amended by St. 1905, Chap. 251, Sect. 2, and further amended by St. 1907, Chap. 480, requires every physician to report to the local board of health immediately, every case of such disease which he is called upon to treat. The report must be in writing, over his own signature, and give enough information to enable the board to locate the case easily. The local boards usually furnish post cards with spaces for the necessary information and have ruled that "immediately" means at least within 24 hours of making the diagnosis, and sooner, if possible.

I think it is not generally known that Sect. 49 of Chap. 75, R. L., amended as above and further by St. 1910, Chap. 269, and St. 1914, Chap. 177, requires the head of the household in which such disease occurs to make a similar report to the local board, the object being, of course, to make it as certain as possible that the local board receives notice of the existence of the case at the earliest possible moment.

As soon as a report of a case of a disease dangerous to the public health is received by the local board of health the machinery for protecting the public begins to move automatically.

It is not necessary to describe the working of this machinery, but it is worth while to point out the difference of view between the member of the local board of health and the practicing physician, when it comes to dealing with a case of such a disease as we are discussing.

The whole training of the man in public health work, or health officer as he may be called, teaches him to look at such a disease from a diametrically different viewpoint from that of the ordinary physician; he is chiefly interested in the prevention of disease and in caring for the health of the public, while the practicing physician is chiefly interested in the cure of disease, and in caring for the health of the individual.

In other words, the health officer cares little for the individual and much for the public, and the physician is deeply interested in the individual, and, as a rule, cares little for the public.

This differing point of view has a very practical bearing upon the subject when it comes to dealing with a case, and often accounts for the seeming callousness of the health officer toward the individual, and explains why his position in regard to dealing with tuberculosis differs somewhat from that of others in the same work.

The majority of diseases with which the health officer deals have certain characteristics in common: thus, they are practically self-limited and tend to run a comparatively short course; the diagnosis is, as a rule, easy; they run fairly true to type; are known to be capable of transmission to others, *i.e.*, they are dangerous to the public health in the early stages and, as a rule, the liability of transmission is less in the later stages.

Tuberculosis, on the other hand, is not self-limited, is of comparatively long duration, difficult of diagnosis and protean in its manifestations; it is not capable of transmission in its early stages, and its liability of transmission increases in the late stages.

These facts make tuberculosis very difficult to handle, especially in its early stages, and furnish a strong argument in favor of making a positive sputum the criterion of tuberculosis from the point of view of the local board of health.

When a health officer has a person with a disease the physical signs of which are such that two supposedly competent men will give diametrically opposite opinions; when he himself feels sure that even if the patient has the disease for which he has been reported, he cannot transmit it to others at that stage; when he cannot truthfully tell the patient that he has the disease, because of which he is asked to take precautions, what on earth can the poor man do? His position is not a very strong one!

If, on the other hand, he can say to the patient that a laboratory examination has shown the presence of certain organisms in his sputum; that the presence of those organisms makes him a source of danger to his family and friends, just as he would be if he had diphtheria, and that the danger can be lessened by taking certain precautions, then the health officer's position is much stronger; he can speak much more convincingly and the patient is more apt to be amenable to suggestion. I say "suggestion" rather than "command," because the agitation which has more or less successfully attempted to place tuberculosis in a class by itself, has in a way defeated its own object and increased the difficulties of handling it. There is no question that the various special laws bearing upon the care of persons ill with tuberculosis have lessened the power of the local boards of health, and by giving a divided authority have made it hard to decide in certain cases just what body has control of the patient.

In addition, the establishment of a number of amateur associations for the care of persons ill with tuberculosis has undoubtedly increased the difficulties of the local boards. These associations are filled with a horde of well-meaning, but more or less hysterical persons, ignorant of the law and always ready to take a hand in the game the moment the word "tuberculosis" is mentioned, whose sole object in life seems to be to find fault with the local board of health, often for not doing that which it cannot do because of the very laws which they themselves have been instrumental in putting on the books.

These persons by their agitation have, I believe, accomplished one result, at any rate, although I have no hesitation in saying that they hadn't the slightest intention of doing it. They have created such a feeling of phthisiophobia among the general public that they have made many thoughtful men refuse to report their cases of tuberculosis in the early stages, because they do not wish to put a stigma on their patients and expose them to ostracism by the public and possible loss of their means of livelihood, by being compelled to give up work because their employers fear contagion.

These men have practically put into effect the very procedure here advocated, and show that they do not consider tuberculosis a disease dangerous to the public health, until it has been shown that it is so, potentially at least, by the demonstration of a positive sputum.

They take the risk of violating the law in order to do that which the law ought to require before branding a person as a danger to the public, and all because of the ill-advised agitation by persons who lack knowledge and are frightened at a word!

I think I can show that the law of Massachusetts, as it exists today upon the statute books, has practically declared that the demonstration of the presence of tubercle bacilli in the sputum is a prerequisite to declaring that a person has tuberculosis. In other words, it has given a definition of tuberculosis, although perhaps such definition was not intended.

There is a statute, which is commonly known as the subsidy law, which provides for the payment by the state of a subsidy of five dollars per week for every case of tuberculosis which a city or town cares for in a private hospital.

Officially, this statute is known as Chapter 579 of the Acts of 1911 as amended by Chapter 637 of the Acts of 1912, and further amended by Chapter 57 of the General Acts of 1916, and reads as follows:

> Every city or town which places *its patients suffering from tuberculosis* in a municipal or incorporated tuberculosis hospital in this commonwealth, or in a building or ward set apart by a municipal or incorporated hospital in this commonwealth, for patients suffering from tuberculosis, shall be entitled to receive from the commonwealth a subsidy of five dollars a week for each patient who is unable to pay for his support, or whose kindred, bound by law to maintain him, are unable to pay for the same; *but a city or town shall not become entitled to this subsidy unless,* upon an examination authorized or approved by the trustees of hospitals for consumptives, the sputum of such patients is found *to contain bacilli of tuberculosis,* nor unless the hospital building or ward is approved by said trustees, who shall not give such approval unless they have by authority of law, or by permission of the hospital, full authority to inspect the same at all times. Said trustees may at any time withdraw their approval. They shall not approve claims for subsidy hereunder for more than thirty days prior to the date when notice is mailed to them that a subsidy in any given case is claimed.

The conclusion is perfectly obvious that, in order to obtain the subsidy for a case of tuberculosis, the local board must show that the patient is actually ill with tuberculosis and under the law, the only evidence of this which the state will accept is the presence of tubercle bacilli in the sputum.

The trustees of hospitals for consumptives admit that the reason for putting that proviso in the law was to save the state from paying the subsidy on a lot of non-tubercular cases. I am not quite sure whether that is an admission on their part of the fallibility of the physical signs or a reflection upon the integrity of local boards of health in general, and care very little which it may be; the main point is that they have, though probably without intending it, put a definition of tuberculosis upon the statute books of the state, and have made the demonstration of the presence of tubercle bacilli in the sputum, *i.e.*, a positive sputum, a necessary prerequisite of calling a case tubercular when the subsidy is claimed.

I believe that I have shown sufficient reasons to justify my contention that from the point of view of the local board of health, no one should be recorded as having tuberculosis, a disease dangerous to the public health, until it has been shown that such person is a potential source of danger to the public.

The same reasons also answer many of the objections which may be urged against such a declaration, and such a declaration would be of distinct advantage to the health officer because it would give him something definite upon which to base any action he might take.

It would also lighten his burdens very materially when it comes to dealing with the amateur societies and volunteer workers already referred to, who give him no peace whenever they hear of a person who is even remotely suspected of having tuberculosis. He could simply point out that a number of careful examinations have failed to demonstrate the presence of bacilli and that, as a consequence, the patient, even though he may be thin and pale, does not come within the law.

It may be pointed out that it is difficult to demonstrate the presence of bacilli in the sputum when they are present in small numbers, and that in this way persons who have bacilli and are, therefore, dangerous to the public health, would be undetected and liable to spread the disease.

My reply to that is that under present conditions many persons whose sputum is known to be loaded with bacilli are going about freely, spreading their bacilli broadcast, and a few undetected cases would make no difference.

If the local boards had the power, or rather were allowed by the courts to exercise the power which I believe they have, to restrain these persons, the objection referred to might carry some weight, but as they have practically no control over so-called incorrigibles, the objection falls to the ground.

There is no reason why either the physician, the patient, or the local board should be satisfied with a single sputum examination, if it is negative. It is fair to suppose that the physician had some reason for asking for an examination, and if the result is negative he should ask for a second, or even a third, exactly as he would in a case where the clinical symptoms led him to suspect diphtheria or typhoid fever, but the laboratory report was negative.

Of course if the examinations continued to be negative for a period of several years, the fair deduction would be that the patient has not tuberculosis.

Another objection which will surely be raised is that by waiting until the presence of bacilli can be demonstrated, much time may be lost, and many so-called incipient cases, which might be arrested if sent to a sanatorium, will not come under treatment until too late to accomplish anything. I believe that this is more imaginary than real, because at present a patient, even if he has tuberculosis, cannot be sent to a sanatorium unless he is willing to go and, under a recent ruling of the Superior Court, since upheld by the Supreme Court, it isn't necessary for a patient to have tuberculosis at all in order to go to a sanatorium, if he wants to go.

Furthermore, under another ruling, any physician may send a patient to a sanatorium on a most casual physical examination, provided the patient is willing to go.

It appears that there is at present very little difficulty in sending anyone to a sanatorium who wants to go.

Massachusetts has—on paper—one of the best systems for caring for persons ill with tuberculosis that exists today,—but in actual practice it breaks down because it rests entirely upon the consent of the patient to be taken care of. If he is willing to go to a sanatorium, and stay there after he goes, he has the advantage of skilled treatment while he is there, and of supervision and assistance from both the state and the municipality after he is discharged, but if he doesn't want to go or will not stay after he gets there, I know of no power that can make him do either.

It is evident that the proposal to confine the legal definition of tuberculosis to those cases in which a positive sputum has been demonstrated would have little bearing upon the admission to sanatoria of persons whose physical signs are such as to lead to the belief that they are possibly in the incipient stages of the disease, provided such persons are willing to go. If they are not willing to go they wouldn't go, just as they will not now, so it would make no practical difference either way.

It might have a marked effect upon vital statistics by increasing the deaths from tuberculosis and bringing it nearer the truth. Anyone at all familiar with death records knows that while many are filed giving the cause of death as tuberculosis upon very slight evidence, on the other hand, the deaths of many persons known to be tubercular are recorded as being due to "bronchitis," "heart disease," "anemia," and similar diseases; the reason for this being that many insurance companies refuse to pay on persons dying of "tuberculosis," if the death occurs within a certain period of the writing of the policy. If there was a settled test of what should constitute tuberculosis, all this juggling with death returns would cease and the statistics come nearer the fact.

It would, however, change the responsibility for their care if they did go, because not being persons ill with a disease dangerous to the public health, the overseers of the poor, and not the local board of health, would have to care for them. This is a minor matter, and is merely a return to the method in vogue previous to 1909, when the overseers paid the bills for such persons.

On the whole, I believe that the change might bring about a much-desired reform in procedure and tend to restore power to local boards in caring for persons who have tuberculosis; for if it were once understood that no one should be officially recorded as ill with tuberculosis unless it had been demonstrated that he was potentially capable of transmitting the disease to others, and so a source of danger to the public, the courts and the public generally would be more prone to acquiesce in such measures of restraint as might be imposed upon the patients.

Under present conditions it must be admitted that it is a lamentable fact that there is no real control over persons who have tuberculosis, unless they choose to submit to the requests of the local authorities. This being true, it is equally evident that any change in the methods in vogue must be for the better, and that the criterion of tuberculosis which I have proposed cannot in any way diminish the actual power which boards of health have over tubercular patients, and consequently it will not be a backward step.

For that reason I have no hesitation in saying that if the presence of tubercle bacilli were generally adopted as a necessary prerequisite to recording a person as having tuberculosis, it would not in any way decrease the efficiency of the present working methods of control of the disease and, as I have tried to point out, it might even strengthen them.

The crying need at the present time, in my opinion, is some method of procedure which will put tuberculosis back where it belongs, on a plane with other diseases dangerous to the public health, and permit the health authorities to take such measures as they feel sure are necessary. In addition, unauthorized interference by outsiders should cease. The responsibility for the care of persons ill with tuberculosis and for the protection of the public from possible infection by such persons, has been given by law to the local boards of health, but their efforts are handicapped and often neutralized by the interference of irresponsible outsiders, who move them from place to place at their own sweet wills and fill them up with misinformation.

If an unauthorized person moves a patient who is ill with diphtheria or scarlet fever from one town to another, or if such a person absconds, he is hunted down and put under restraint, and the person responsible for the act may be punished. Why? Simply because the patient has a disease dangerous to the public health, and may give it to others.

If, however, the patient has tuberculosis, a disease dangerous to the public health, he may go about freely, and the most that happens is that the local board of health of the town from which he went may notify the other board, if it happens to know about it and isn't too busy!

Every one of us in public health work knows that this is true and knows that our methods for the control of tuberculosis are farcical, but we are inclined to shut our eyes and talk of what a splendid system we have—on paper.

What we should do is to face the facts and do our best to limit the use of the term "tuberculosis" to those cases which really are dangerous to the public health. Our position would then be much stronger, and we could probably get some control over persons whom we all know are dangerous.

Definitions and Diagnostic Standards in the Diagnosis of Pulmonary Tuberculosis in Adults.

By John B. Hawes, 2d, M.D., Boston.

One of the problems that confronted Dr. Armstrong and the committee interested in the experiment now being carried on in Framingham, was to decide upon some definite set of standards on which the diagnosis of tuberculosis should be based. The need of standardizing this subject is, of course, evident. There is a tremendous difference of opinion among physicians and those possessing special knowledge upon the subject, as to what constitutes clinical tuberculous disease. Patients are constantly going from the Massachusetts General Hospital Out-Patient Department, for instance, to the Out-Patient Department of the Boston Consumptives' Hospital, and from there to the Boston Dispensary, and are getting radically different diagnoses and different advice. If this holds true at large clinics in Boston, where men who are to a certain extent specializing in this work are in charge, it will hold true to a far greater extent among general practitioners, whether in Framingham or throughout the country.

I was asked to submit to a committee in charge of this matter a set of diagnostic standards for this purpose. I found this a most difficult task. For instance, among the symptoms which I considered of importance, I immediately put down "loss of weight"—but then I at once asked myself what constitutes loss of weight. How much weight, for instance, must I myself lose and over how long a period of time before I should consider it an important symptom? The same thing applies to the term, "rapid pulse." We are far too apt to say glibly that loss of weight, loss of strength, rapid pulse and fever are important symptoms in the diagnosis of tuberculosis. When one comes to analyze these terms, however, it is evident that unless they are clearly defined they mean little or nothing. This applies particularly to the word "hemorrhage." There is probably no symptom more alarming to patients and yet so hard to define accurately as hemorrhage. Therefore, in conjunction with these diagnostic standards, I prepared certain definitions as suggested above. The committee made various minor changes in the draft which I submitted, which in its final form is nearly as follows:

DEFINITIONS.

1. Loss of Weight.—By "loss of weight" should be understood an unexplained loss of at least 5% below normal limits for that particular individual within four months time.

2. Loss of Strength.—By "loss of strength" in its pathological sense is meant undue fatigue and lack of staying power which are unusual for that individual patient and which cannot be satisfactorily explained.

3. Fever.—An occasional temperature of 99° should not be considered "fever." A temperature which persistently runs over 99° when taken at least four times a day over a period of one week (by mouth five minutes) should be considered of significance and constitutes fever.

4. Elevation of Pulse.—Where the average normal pulse of the patient is already known, an elevation of 15 beats per minute, when the pulse is taken quietly at home during various periods of the day, should be considered abnormal. In cases where the average pulse is not known,—and of course this constitutes the majority of cases,—one should consider an average pulse of 85 or over in men, and 90 or over in women, to be abnormal. The combination of a subnormal temperature and an elevated pulse as defined here should be considered of great importance.

5. Hemorrhage.—Any amount of blood, with or without sputum, requires medical investigation as to its source. Blood streaks, blood spots, etc., may or may not mean tuberculosis. On the other hand, a hemorrhage amounting to one or two teaspoons is presumptive evidence of the disease.

6. Family History.—An occasional case of tuberculosis in the patient's uncles, aunts, cousins, etc., should not be considered of importance. It is an important fact when the patient's immediate relatives, such as father, mother or grandparents have been tuberculous.

7. Exposure.—Childhood exposure, no matter how slight, is of the greatest importance. Moderate exposure among normal, healthy adults of cleanly habits is of less importance. Of course, prolonged contact, with unhygienic habits or surroundings, may be a dangerous factor at any age.

8. Cough.—No cough is characteristic of tuberculosis. A persistent cough for six weeks requires investigation. Tuberculosis can exist without any cough whatsoever.

9. Sputum.—The presence of sputum is not necessary for a positive diagnosis. Constant sputum, with or without cough, requires investigation. Absence of bacilli in the sputum after one or several laboratory examinations is not necessarily proof against the presence of tuberculosis.

10. Hoarseness.—Any hoarseness or persistent "huskiness" requires investigation.

DIAGNOSTIC STANDARDS.

On a basis of these definitions, the following minimum standards in the diagnosis of pulmonary tuberculosis have been formulated:

11. When constitutional signs and symptoms and definite past history are absent or nearly so, there should be demanded definite signs in the lungs, including persistent râles at one or both apices. By "persistent" it is meant that the râles must be present after cough at two or more examinations, the patient having been under observation at least one month.

12. In the presence of constitutional signs and symptoms, such as loss of weight and strength, etc., as defined above, there should be demanded some abnormality in the lungs, but not necessarily râles.

13. Usually a process at the apices should be considered tuberculous, and a process at the base to be non-tuberculous until the contrary is proved.

14. A hemorrhage as defined above is evidence of active pulmonary tuberculosis until the contrary is proved, except when a clear history of pleurisy is present.

15. One should consider a typical pleurisy with effusion as presumptive evidence of tuberculosis. One should also consider a dry pleurisy as evidence of slight tuberculosis.

16. Pain in chest and shoulders, night sweats, digestive disorders, etc., may be present and should be investigated.

17. In every doubtful case one should demand that the patient be kept under observation for at least one month, with repeated sputum examinations, before making a definite diagnosis.

It will be interesting to see whether or not these definitions and diagnostic standards prove satisfactory for the general practitioner to use. It is perfectly clear that there will be many cases which must be looked upon as exceptions to the rule, and which will not fit into these standards. I do believe, however, that the great majority of diagnoses should be, in a general way, based upon these standards as here given.

DISCUSSION.

Dr. Arthur N. Broughton, Jamaica Plain: Dr. Lyman has covered very thoroughly the methods to be employed in making a diagnosis of tuberculosis. It seems to me that this method rests upon exactly the same principle as that of making any other diagnosis in those cases which come to the general practitioner. To get a correct diagnosis, whether in a surgical case, as in an appendix, duodenal ulcer, or in any other such problem, the whole picture is essential, rather than any one particular finding.

There is no one symptom that is exclusive evidence of appendicitis or any of the above-mentioned conditions. In the same way, except for the presence of tubercle bacilli in the sputum, there is no conclusive evidence of tuberculosis. To wait until bacilli are found in the sputum is to wait altogether too long to do the patient much good. It is perfectly obvious that one examination of the sputum which is negative, is of no more value than one examination of urine which does not have albumen, or of the blood which does not show a leucocytosis or Widal, or any other single examination. It is the composite picture as a whole that aids us in establishing the diagnosis of tuberculosis.

In approaching a case where tuberculosis is established, I have tried to differentiate in my mind between the needs of the patient and my duty toward reporting the disease to the Board of Health. For the purposes of the Board of Health, it is fair, I think, as Dr. Curtis has pointed out, that only those cases be reported which have tubercle bacilli in the sputum, thereby becoming a direct menace to the community. If repeated examination of the sputum shows no bacilli, even though in my own mind I strongly suspect the existence of tuberculosis, I think it is fair to give the patient the benefit of the doubt. As one of the speakers has pointed out, an extraordinarily large proportion of all children, and we may also include a large proportion of all adults, have had at some time or other a tubercular infection. Change of conditions has helped to arrest the process. I cannot believe that we should be expected to report every case falling under this head.

On the other hand, whether or not there are bacilli in the sputum, if there is reason to expect that the case will get away from careful observation,—as in the case of particularly ignorant or remotely situated families,—then it is the duty of the physician to report the case.

Practically, in those cases coming with a progressive loss of strength, occasional afternoon temperature over a period of a week, with moderate loss of weight, increased pulse, pallor, and the other symptoms to which Dr. Hawes has referred, I assume that the patient has a tuberculous process somewhere. I inquire with the utmost care into the family and previous history.

I cannot believe, as one of the speakers has stated, that there is any large proportion of men doing general work, who would not take the trouble to strip a patient and make a careful examination of the chest. On the contrary, I believe there is a very large proportion of men doing general work who would do just that,—quite as large as the proportion of internists who would make a careful, comprehensive consideration of the whole picture in making a diagnosis. When, in addition to a careful examination and frequent examinations of the sputum, we have an x-ray of the chest, it is usually not very difficult to make an early diagnosis,—long before there are actual physical signs in the chest. In this connection, I may say that I have had no difficulty in getting whatever x-rays were necessary for the patient, regardless of his ability to pay the expense.

Dr. Lyman has pointed out that many cases which were unquestionably tubercular had no persistent symptoms in the chest. Particularly is that true of children having mesentery glands or generalized tuberculosis, or tubercular adenitis.

A word of caution may be spoken in regard to placing too great reliance upon x-ray findings. The existence of calcified areas, increased density of the bronchial tree, and even fairly extensive shadow needs much more to go with it to make up a picture of tuberculosis.

One disease, not uncommonly confounded with tuberculosis, which should always be kept in mind in adults or children, is latent hereditary syphilis. It is extraordinary in how many instances cases of unexplained temperature, lowered resistance to infection, long-continued history of illnesses, will be cleared up by a careful family history taken with an x-ray of the long bones. The Wassermann is very rarely present, as one would expect in these cases, which may be really an end-result of a chronic disease.

DR. W. IRVING CLARK, Worcester: After such a very thorough consideration of all sides of tuberculosis in the incipient stage, it seems almost impossible to find anything which has not been touched upon. One thing slurred over is the question of the importance to the patient of the early, correct diagnosis. It is tremendously important to the patient to get this definite diagnosis as early as possible. A patient who is held hanging on a string more or less is in a very awkward and unpleasant position. He does not know whether he has to close up his affairs; whether he is possibly exposing his family to the disease; the sooner he can be put out of misery the better.

That brings us down to the question of how we are going to make our diagnosis in the quickest possible way. I think one of the great dangers in this is one which has been pointed out by Dr. Lyman: the fact that so few patients have had a physical examination at an early period. The general practitioner does not like to have the patient strip and make a careful examination of his chest. I do not know why, but my experience has been that that is the case. If we could only get it before the practitioner at large that when a patient comes into his office with a history of cough, even of short duration, he should make an examination of that patient's chest, we should get hold of many cases of tuberculosis much earlier than we do at the present time.

In the second place, I feel that in every community there should be some central station where the diagnosis of possible tuberculosis can be checked up. This is particularly applicable to the smaller country communities where it is very difficult to send a patient into Boston or into the nearest city. I think it would be a step in the right direction if there should be possibly a travelling tuberculosis expert,—a man who would be able to confirm to a degree the diagnosis of a local physician,—to travel as a circuit judge travels and be prepared to make a positive diagnosis and to help the general practitioner in that district.

In regard to symptoms of early diagnosis I have found that listlessness in the afternoon is one of the most valuable symptoms. I do not think this is brought out sufficiently. It is very difficult to be sure about an afternoon temperature in a patient who comes into your office. You are not quite sure that the patient has had that afternoon temperature for a period of a week before. If that patient tells you that he has not been feeling like doing anything much in the afternoon for some time; that he feels tired at four or five o'clock in the afternoon; that he would like to stay at home and lie down—then you should begin to get suspicious, regardless of the other history he gives you.

Physical signs—I think that sub-crepitant râles at one of the apices, persistent, is a pretty definite sign whether your percussion shows any change there or not. Sub-crepitant râles which persist over three examinations to me are a very suspicious sign and I am almost willing to make a definite diagnosis on them.

Extra-pulmonary râles I think are very difficult to diagnose,—making a patient go through the motions which will produce an extra pulmonary râle; taking hold of the nose and making the motions of an inspiration very often will bring them out. Some patients find this experiment difficult. Those cases I find are more troublesome than any others.

Dr. Charles H. Cook, Natick: I do not speak as an expert in tuberculosis, but I know, as a matter of memory, most of you as a matter of history, what was taught on this subject more than forty years ago. At a clinic in Bellevue Hospital, I heard Alonzo Clark, then professor of medicine in the College of Physicians and Surgeons, New York City, make this statement: "While I am not prepared to say that the spitting of blood lengthens one's life I am prepared to say that it does not shorten it." (Of course he was not speaking of profuse hemorrhages.) Do you of today endorse that statement? This calls to mind two experiences of my own: In the late 70's a well-nourished lady was brought to my office who had raised blood several times that morning. Physical examination revealed nothing abnormal. I did not have the suptum examined, for the tubercule bacillus had not been born. Nothing further developed in the more than thirty years following, during which I continued as her physician. Within the last five years she died with cancer of the bladder, verified by an autopsy. In March, 1884, a patient had so free bleeding from the lungs that I was obliged to keep her in bed, with positive orders not to speak, even in a whisper, for more than a week before the bleeding ceased. That patient is still living and is at present under my care with arteriosclerosis and high blood pressure.

As regards negative reports in sputum examination, the good Lord has been very kind to me, for I have as yet had no cases develop tuberculosis following such a report.

I want to express my obligation to Dr. Hawes for his sentence in his book, "Early Pulmonary Tuberculosis": "Were the stethoscope used less and the thermometer and common sense used more, there would be fewer mistakes."

Dr. Francis P. Denny, Brookline: I would just like to say a word about Dr. Curtis' proposition to consider only as tuberculosis from a board-of-health point of view, cases with tubercle bacilli. I sympathize in a great many ways with that position. I think it would simplify board-of-health work very much and put it on a rational basis. On the other hand, we are building up a machinery now for fighting tuberculosis, with our dispensaries and tuberculosis nurses, for which we need information of the cases that do not have tubercle bacilli. We should feel that any one with active tuberculosis, without bacilli, is likely to become a source of danger, and for that reason should be under the supervision of the board of health, just as we supervise individuals who have been exposed to a contagious disease and who are likely to become a danger as a result of it. I think we should lose a great opportunity to do preventive work in tuberculosis if we did not have knowledge of those individuals who have an active tuberculosis without bacilli.

Dr. Ralph W. Jackson, Fall River: A few years since one of the best-known internists in Boston remarked to me that, in any case of doubtful pulmonary trouble, he considered that the discovery of the existence of any peri-anal suppurative process is proof sufficient of the existence of tuberculosis in the lungs. Dr. Lyman is the only man, who has spoken today, who has hinted even at the use of these septic processes as a possible aid in diagnosis.

Two incidents come to my mind which make me question whether our state sanitaria are making sufficient diagnostic use of them or paying sufficient therapeutic attention to them.

Probably four or five years ago, while visiting Lakeville in company with a number of other physicians, who had been invited there as guests to inspect the institution, I asked the superintendent how many of the patients had fistula or other rectal trouble—I was seeking material for a paper which I was preparing on fistula; but he frankly told me that he had no definite knowledge or data and could not help me.

More recently a patient has been under my observation who was in Rutland six or seven months in 1916. His was a perfectly plain case of pulmonary tuberculosis, and he was discharged as an arrested case and greatly improved in general health. But during the last three months of his stay there he had developed a fistula which was making him very uncomfortable, yet its existence was not known to the institutional authorities, either during his stay, or at the time of his leaving. He shortly appeared at my rectal clinic at the Carney Hospital Out-Patient Department with a fistula which had all the earmarks of being tubercular. There was a sinus of some extent around one side of the anus and upward for two or three inches under the anal and ampullar mucosa. After considerable care, surgical and otherwise, we now have him about straightened out and, I think, at work.

In view of the frank statement from Lakeville and this case from Rutland, I asked the question whether enough attention is paid to such conditions at the Massachusetts sanitaria. I think the query is justified.

Dr. John F. O'Brien, Boston: The law makes it mandatory that we report cases of tuberculosis. If I interpret rightly the meaning of the paper we have just heard, it is a protest against such a law, and in favor of one which would exact notice from the physician only in the event of a positive sputum. We are concerned with this question not only by reason of its bearing on the lives and fortunes of our patients, but because of our vital interest in the results to the community at large of any modification of already existing law.

I submit that there is no antagonism between the public health officer and the physician in private practice, save in very isolated instances. The physician is, as a rule, responsive to the suggestion of the health official, and anxious to do his bit in promoting the general well-being of the public. Is this done by lending enthusiastic support to the law which comprehends all cases of tuberculosis? Or should we ask that it be modified, fearful that injustice or hardship will come to the unfortunate sufferer who is to be free from the inspection of the public health official, until such time as it becomes evident that he is a veritable menace to the community? Are we to subscribe to the proposition that arrested bone and glandular affections, tuberculosis of the skin, peritoneum and meninges, and all incipient cases, are to have only an academic interest for our public health officials—that their attention is not to be called to them until infection has so far progressed as to permit the classification "a moderately advanced case"?

I fear that much good work would be undone should we allow ourselves to take this view. On the other hand, no man of experience will deny that injustice has been done by reporting tuberculosis where the diagnosis has been based on very slender physical signs. There has arisen a wholly unwarranted fear of the individual who is in the beginning of his tubercular days. His home comforts, employment, and, as a natural sequence, sustenance for his family are frequently jeopardized by hasty judgments, or by ill-advised follow-up methods on the part of the authorities.

It is difficult to say, of course, just where the line is to be drawn. The financial resources of many of these people are so slender as absolutely to forbid supervision excepting by public health officers. I see no way in which this is to be remedied. I trust I shall not be misunderstood when I say that the physician who can keep watch over his incipient or arrested cases ought to be allowed some latitude. I believe it to be extremely hazardous, however, to advocate anything which would eliminate from occasional supervision the man with fairly definite signs of tuberculosis, and lacking only positive sputum.

The conscience of the physician should decide whether or not his patient will fall into the class of those whom he is sure to see at regularly stated intervals. Common sense ought then to govern his action as it does, or should do, in the enforcement of *all* laws. With this exception I would stand for the law as it is written today.

I can sympathize with the public health official who finds at times that his arduous and most intelligent efforts are nullified by the well-meant but misdirected zeal of those who have but recently begun to manifest any interest whatsoever in public health questions. My opinion is that in all probability such will always be with us, and we must consider them as part of the day's work. Their occasional mistakes should not, however, blind us to the immense amount of good work performed by them. A calm and dispassionate judgment must result in our admitting that much of the progress made in matters of personal hygiene and cleanliness, and a lower death rate, has been coincidental with the formation of volunteer organizations and special commissions.

Dr. Edward O. Otis, Boston: The papers presented this afternoon upon this old, but ever new, subject of the early diagnosis of tuberculosis, with their discussion, have been of much interest, and we are greatly indebted to those who have so clearly and fully presented the subject.

Strictly speaking, we cannot make a truly early diagnosis of pulmonary tuberculosis. As the farmer remarked after seeing the hippopotamus at the circus: "There ain't no such animal." The diagnosis of active or clinical tuberculosis can only be made when we have definite *symptoms* of the specific toxic infection, whether or not there are co-existing physical signs, and when such symptoms have developed, the disease has progressed beyond a theoretical early stage, only it is as early as we can make the diagnosis.

As Dr. Lyman has said, one must bear clearly in mind the distinction between pathological or anatomical tuberculosis and clinical tuberculosis. The former has no symptoms, interferes in no way with one's general health and requires no treatment.

In a recent examination of third-year students I asked the question: "What cases of tuberculosis require no treatment?" referring to this pathological tuberculosis which Dr. Lyman mentioned, and I was somewhat surprised to receive several answers to the effect that far-advanced cases required no treatment because they were hopeless anyway.

I have not infrequently seen cases which have been diagnosed as clinical or active tuberculosis, from doubtful or indefinite physical signs, in which there were none of the characteristic symptoms of active disease. When symptoms are lacking, even if certain physical signs are present, such as slight apparent dulness and modified respiration, only "watchful waiting" is necessary. The moment, however, definite active symptoms appear then active treatment should be instituted. And yet, how great the temptation to temporize and defer active treatment until we satisfy ourselves that unmistakable physical signs are present, thus, perhaps, losing the golden opportunity for the most successful treatment.

As to the most important and characteristic symptoms, each one of us may differ somewhat according to our experience. I suppose that all would agree that a rapid pulse, constant afternoon temperature, a continuing cough, and loss of strength and weight are cardinal ones, of the first magnitude. The weight placed upon the many other symptoms will depend, as I have said, upon one's personal experience.

As to physical signs, I have only to say that doubtful deviation from normal resonance and indefinite modification of the respiratory murmur are not sufficient evidence, in my opinion, for making a diagnosis of early pulmonary tuberculosis. Râles, however, are a different proposition. They are wholly adventitious sounds, not modifications of normal ones, and when persistent and localized at one or the other apex, this sign alone goes far towards making a definite diagnosis.

As to hemoptysis, this striking symptom, as has been said, is almost pathognomonic, still occasionally spitting of blood may come from another source than that of a tuberculous lung, and one should be careful to exclude all other possible causes of the hemorrhage, in the upper respiratory tract, from a cardiac lesion or elsewhere. I recall a case that I was called to see as one of hemorrhage of the lungs, but which apparently was consequent upon a cirrhosis of the liver in an alcoholic person.

With regard to the reporting of tuberculosis: shall we report only such cases as have tubercle bacilli or all cases which, in our opinion, are actively tuberculous whether there is a positive sputum or not?

I remember that some years ago I asked the opinion of the chairman of the Boston Board of Health upon this point, and his answer was that whenever I was convinced that I had a case of tuberculosis I should report it. If one reports only cases that have a positive sputum, then it is obviously not enough to obtain a single negative by the ordinary method of examination. Either such examination should be repeated several times or some of the more delicate tests should be employed, such as the antiformin, the Ellerman and Erlander, and the complement fixation tests. I should like to call the attention of the section to the recently published results obtained by the latter test by two of the members, Dr. Slack, recently bacteriologist of the Boston Board of Health, and Dr. Burns of the Reading sanatorium.

Dr. Charles E. Prior, Malden: When Dr. Hawes asked me to participate in the discussion, my first thought was to get a glimpse of Dr. Curtis' paper. I am glad I did not as I should have missed the tonic effect that paper had on me. There is a good deal to be said on that subject. It seems to me it is more or less a local problem. We do not have any such trouble in Malden as Dr. Curtis speaks of. I wonder if it is not something in the way we have approached the problem. We do not feel that cases of tuberculosis should be reported, however, as scarlet fever and diphtheria are reported, so as to quarantine them, but because the legislature has included tuberculosis among the other diseases dangerous to public health, and in order that we may find these people, and do something for them. It seems to me there are very few cases where tuberculosis will escape the supervision of careful observers if that supervision is properly carried out. I can mention to you quite a number of cases of tuberculosis ill in their homes. I know that they are no menace to the people in their households and there are several small children in the families.

I wish we had some test like what we have for diphtheria by which we could put our finger on the disease and say right off, it is tuberculosis, but, as physicians have shown today, there are a good many cases of tuberculosis we cannot make out that way. Those cases require a good deal of supervision,—require a good many observations. That is where our tuberculosis dispensary comes in. If we approach these people, not with the feeling that they are a menace to the publc health, but that they are unfortunate individuals, and our duty is not to isolate them but to help them, we have the best reason for requiring a report of all cases, whether with or without positive sputum.

I can say for the city of Malden that the doctors are helping me in every way. I am finding very little opposition on the part of the physicians to carrying out our tuberculosis program. There is no society in our city which professes to help out the board of health except the Malden Anti-Tuberculosis Society. They made me president of that and chairman of the board of health, so everything works quite peacefully.

I must say once more I am strongly in favor of reporting all cases of tuberculosis. On the other hand, I am not in favor of putting the screws on people, making those people feel as though they are isolated cases and people to be shunned. I think that with this attitude we can carry out the present provisions of the law although I think some time the statutes may be so modified as to make a distinction between tuberculosis, which, under careful management, can be shorn of its danger to the public health, and scarlet fever, for instance, which, with our present knowledge of its means of transmission, cannot be so easily handled.

Dr. Ralph E. Stone, Beverly: Dr. Chadwick has presented the subject of "What Justifies a Diagnosis of Tuberculosis in Children" so clearly and interestingly I think there is little left to say upon the subject. I heartily agree with him in laying stress on the matter of contact, especially if intimate or prolonged.

The symptom which has been of utmost importance to me has been the question of being easily fatigued. The child who complains of being tired first thing in the morning, or who has no inclination to play, or becomes tired very easily, makes me suspicious of trouble. While we are on the subject of "Suspects," it seems to me that the tendency is too often to slur over the suspicious cases and not give them due investigation. These cases must be diagnosed by the process of elimination. If we are unable to account for their fatigue, their elevation of temperature, etc., in any other way, after going over them with a fine-tooth comb, as it were, we must finally come to the conclusions of tuberculosis.

I believe that the fact that it is impossible to investigate in general hospitals the many difficult cases of diagnosis is a great detriment to the doctors and to the patients. The recommendation of the National Association a year ago, that wards be established in general hospitals for the study of these difficult border-line cases, ought to be carried out. It is a great pity that a diagnosis so important to everybody concerned as tuberculosis should not have the full benefit of all the aids which a general hospital can give in the way of diagnosis.

In conclusion I would say that with a history of contact and with constitutional symptoms, even in the absence of physical signs, the diagnosis of tuberculosis in children is not only justified but incumbent upon us.

Dr. J. Herbert Young, Newton: You gentlemen will agree with me, I think, that the time has already passed when it is necessary to find dulness, bronchial breathing, râles, and tubercle bacilli in the sputum before it is possible to make a diagnosis of pulmonary tuberculosis in an adult. I hope that the time is now passing when it is necessary to have definite, well-marked physical signs in the lungs before making a diagnosis in a child. If we wait until a child has a tuberculous pneumonia, or a tuberculous meningitis, before we make a diagnosis of tuberculosis, the disease has already progressed beyond our control. If the theory is sound, that a majority of the cases of tuberculosis in adults is a lighting up of an old process acquired in childhood, then it is especially important that we should make the diagnosis in children and make that diagnosis early.

The question of the family history, it seems to me, cannot be over-emphasized. An infant that is exposed to tuberculosis almost always contracts the disease. By family history we mean more than relatives. Family history should include everybody that comes in intimate contact with the child. It is to my mind relatively unimportant if a child has an aunt whom he has never seen, who has tuberculosis or has died of tuberculosis. It is very important to know, for example, if a child has recently had a nurse who has been obliged to give up work because she had "some trouble with her lungs."

In children the von Pirquet reaction is of great diagnostic value, although its limitations should be appreciated. A single negative reaction does not exclude tuberculosis. Several negative reactions give valuable evidence that the child is free from the disease. A positive reaction shows that the child has somewhere in his body a focus of tuberculosis. This focus may be either active or latent. The younger the child the greater the chances that the focus is active. A positive reaction in a case where there are suspicious signs in the chest does not necessarily mean that the signs in the chest are tuberculous; the signs in the chest may be due to influenza—the positive von Pirquet reaction due to a latent glandular tuberculosis.

I have nothing more to add except that I think this is a very important subject, and I am very glad indeed that Dr. Chadwick has brought this to your attention.

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Original Articles

CLINICAL DATA OF GALL-BLADDER DISEASE.*

By Ralph W. French, M.D., Fall River, Mass.

From November, 1905, to August, 1916, there were 300 operations for gall-bladder disease at the Truesdale Hospital. In this number are included 10 that were operated on twice and 3 that required a third operation. A review of the clinical records gives data of considerable interest.

Predisposing Causes. It is impossible to determine at what age biliary calculi are usually formed, because no one knows how long they may remain quiescent. It seems reasonable to suppose, however, that most gallstones are formed between the ages of 20 and 40, when the system is most liable to the other infectious diseases. In this series the average age at the time of operation was 47, the youngest was 19 and the oldest 72.

The ages at the time of operation are grouped as follows:

Between 19 and 20	3
Between 21 and 30	37
Between 31 and 40	48
Between 41 and 50	79
Between 51 and 60	94
Between 61 and 70	34
Between 71 and 72	5
Total	300

When the histories of these cases were studied they were found to have had symptoms of gall-bladder disease for periods ranging from a few months to 30 years, the average duration being 8 years and 3 months. Frequently it was noted that the first symptoms of gall-bladder disease began 15 years before admission to the hospital. This would indicate that gall-bladder infections occur most often in early adult life.

Sex. Sex has a decided influence on inflammation of the gall-bladder and bile ducts. In these 300 cases, 52 were males and 248 were females, a proportion of the latter as nearly 5 to 1. The reason for this is probably due to the fact that there are more conditions which favor the stasis of bile in women than in men. Chief among them are pregnancy and any constriction of the waist. 52% of the 248 women had borne children.

Exciting Causes. The exciting cause of cholelithiasis is known to be a bacterial infection of the bile ducts and gall-bladder in the presence of a stasis of bile. Rosenow's work at Rochester indicates that this infection gains entrance to the gall-bladder, not by extension from the duodenum, but through the blood, lodging first in the submucous layer. The action of the bacteria causes an increase in the cholesterin and the deposition of bile salts, especially calcium. 84, or 28%, gave a history of some previous serious infection.

Condition at Operation. At the time of operation there was acute inflammation in 89, chronic inflammation in 208, and cancer in 3. Stones were present in 72 of the acute cases, 137 of the chronic cases, and all of the 3 cancer cases. In other words, 29 2/3% showed acute cholecystitis, 69 1/3% showed chronic, and 1% cancer. The gall-bladder was drained in 160 and removed in 137 cases. There were operations on the common duct in 15 cases. The gall-bladder had been previously removed in 2 cases and not disturbed in a third, owing to the nature of the case; 12 of the cases had stones in the common duct as well as in the gall-bladder. A history of jaundice was given in 42%.

Previous Operations. Sixteen returned for a second operation for recurrence of symptoms. It is interesting to note that all of these were patients whose gall-bladders had simply been drained at the first operation and not removed. In 8 of the 16, stones were found at the second operation. The time elapsing since the first operation varied from 5 months to 15 years; the average being 5 years and 3 months.

This brings up the question of recurrence of gall-stones after operation, which is believed to be exceedingly rare, although calculi may form about a suture or other foreign matter left in the gall-bladder at operation. Usually, however, recurrence implies not a new formation, but that some stones were overlooked at the first operation. In the cases in this series, as in others that have been reported, it is probable that the stones were present but not found the first time. While freedom from recurrence is the rule, there are undoubted cases of new formation of stones, as in a case reported by Deaver,[1] from which, after he had removed a hundred gall-stones, another surgeon removed over 200 stones from the same gall-bladder only a few months later. Two hundred calculi could hardly have been overlooked at the first operation.

Mortality. As nearly as can be ascertained, the total number of patients who have died since operation is 28. Of this number, 7 died in the hospital, an operative mortality of 2.3%; two of these had carcinoma of the gall-bladder. Two died from general peritonitis and one from each of the following: acute pancreatitis, septic endocarditis, general septicemia, pulmonary embolus and diabetic coma. Four of the 7 had the gall-bladder drained, while the other 3 had cholecystectomies. Of the 21 deaths that occurred after discharge from the hospital, the cause of death, as far as could be ascertained, in 3 cases was due to gall-bladder complications, and in 18 to other causes. In 8 instances the exact cause was not known, but was evidently not of gall-bladder origin. Besides the 7 who died in the hospital, 2 died within 1 year after, 7 from 2 to 3 years after, and 8 more than 3 years after operation. In 5 instances the date of death is not known.

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* Read before the Bristol South District Medical Society, May 19, 1917.

Associated Lesions. In considering other surgical conditions present at the time of operation, it was found that 177 had other pathological lesions within the peritoneal cavity. Chief among these was appendicitis; 6 of which were removed for acute inflammation, and 111 incidentally and for chronic inflammation. There were various pelvic troubles in 33, or 11%; myomata of the uterus were present in 12, or 4%, which is rather lower than some observers have found. The next commonest lesion was umbilical hernia, present in 3%.

Post-operative Results. Of the 16 that had more than one operation for gall-bladder difficulties, the primary operation had been cholecystostomy. Eleven were done at this hospital and five elsewhere. The second operation, performed in 15 cases, was to remove the gall-bladder, and in 4 to drain the common duct. There was no operative mortality in these 15 cases. All are now living except one who died of pneumonia 4 years after operation. The sixteenth case was operated on elsewhere.

Our follow-up system has succeeded in tracing 271, or 90 1/3%. Of the 160 cholecystostomies, 133 were traced, and of these 55% were cured, 32% were improved and 13% were not improved. Sixteen, or 10%, required further operative treatment. Of the 137 cholecystectomies, 125 were traced, and of these 89% were cured, 6% were improved, and the remaining 5% consider themselves unimproved.

The function of the gall-bladder, if it has one, has never been satisfactorily explained, though many theories as to its purpose have been advanced. Physiologists have maintained that the chief function is the storage of bile until needed for digestion[2]; but this seems improbable when one considers the quantity of bile produced in 24 hours. J. B. Murphy proposed the ingenious theory that the gall-bladder is like the secondary bulb in a bellows, and serves to maintain an even pressure in the ducts, thereby preventing a backing-up of bile in the hepatic duct. Mayo[3] has suggested that the gall-bladder is an "obsolescent" stage of human embryology like the appendix.

Certainly, whatever part this organ does play in the body can be readily taken over by the bile ducts. In fact, this has already been done by nature in many cases before the patient is operated upon. These are the cases in which the gall-bladder is found distended with mucopurulent fluid and detritus, in which the cystic duct is obstructed or even obliterated with no evidence of the presence of bile in the gall-bladder for some time previously.

Judd's recent work on "The Effect of Removal of the Gall-Bladder" is, indeed, a most valuable contribution. He shows that after cholecystectomy all of the ducts outside the liver dilate, chiefly due to the sphincter at the entrance of the common duct into the duodenum; and that this sphincter can withstand only a small percentage of the pressure which it normally maintains after the gall-bladder has been removed. Also that when the muscle fibres are dissected free from the intramural position of the duct, the biliary tract does not dilate after cholecystectomy.

The pendulum of opinion has swung far to the side of cholecystectomy in the last few years. Formerly cholecystostomy was the operation of choice, now cholecystectomy is strongly advocated by men who previously advised drainage of the gall-bladder.

Cholecystostomy and removal of stones cures symptoms of mechanical obstruction, but does not cure cholecystitis, nor can it restore the damaged wall of a gall-bladder.[5] Therefore cholecystectomy would seem to be indicated if the best results are to be obtained; for infection which gives symptoms is almost always present in the wall of the gall-bladder, if not in the bile itself.

While it may be said that there are no well-defined principles which can invariably be followed in the management of gall-bladder operations, yet the operation of cholecystectomy is consistent with the underlying principle of all surgical procedures, which has always been and still is the removal of the offending member.

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General Manager of American Red Cross.—Harvey D. Gusson, president of the Liberty National Bank of New York, has volunteered to give his entire time for the duration of the war to the Red Cross without compensation. He will act as general manager, and will take over much of the work of consolidation and co-operation hitherto performed by Eliot Wadsworth, whose entire time has now been given to his duties as member of the War Council.

Industrial Hygiene.

OCCUPATIONAL DISEASES IN MASSACHUSETTS.

By Thomas F. Harrington, M.D., Boston,

Medical Deputy Commissioner of Labor.

The value of reporting industrial diseases, as required by the State Board of Labor and Industries, increases greatly as occupational life becomes better recognized as a factor in ill health, accidents and deaths among the army of wage-earners in this State.

Massachusetts offers exceptional opportunities for the recognition and study of occupational diseases because of the great diversity and multiplicity of its industries.

The reporting of industrial accidents required by the Compensation Law has centered medical attention upon that aspect of occupational hazard generally. The data show, however, that there is from six to seven times the loss in wages, sickness and ill health annually because of occupational diseases than that rising out of industrial accidents. The startling and tragic nature of the accidents, as well as the fact that their abolition and their "follow up" are a matter of business with insurance companies, have given to this group of hazards a prominence not yet achieved by industrial diseases.

Hospital physicians and surgeons in many centers are giving much time to the consideration of the occupational factor in their diagnoses of patients referred to the hospitals. This emphasis has resulted in many surprising discoveries in etiology, and has excited wide interest in industrial problems. The industrial managers have recognized the economic as well as the efficiency value of preventing occupational hazard to health, limb and life of their employees, and many establishments throughout the State are now under medical supervision and guidance.

The Massachusetts Workmen's Compensation Commission has recognized lead poisoning and other diseases as occupational conditions for which compensation may be obtained. All this interests the general practitioner. The trend of industrial insurance is towards granting to the wage-earner a free choice of an attending physician in industrial accidents. This undoubtedly will be extended to insurance against industrial diseases. The majority of practitioners have had very little opportunity to study industrial processes and their hazards. There is, however, nothing in the field of industrial life that affects the health of the workers that should call for the development of this branch of preventive medicine into a specialty.

It is a difficult matter often to say definitely that any particular affection is due exclusively to some toxic substance used in the process of manufacture. Neither is it always possible to estimate correctly all the phenomena associated with a severe occupational intoxication. Nevertheless it is possible for every physician so to acquaint himself with occupational hazards that he suspects industrial poisoning when a particular group of symptoms present themselves, and consequently directs his examination of the patient accordingly. Many sicknesses due to industrial poisons simulate, almost identically, illness due to an entirely different cause. As an illustration, it might be cited that there is little to guide the physician, so far as symptoms are concerned, in a case of nephritis or of gastritis, or of nervous affections due to toxic substances, and those due to causes far removed from occupational exposure. The patient's statement is of little value at times as he seldom knows more than the trade name of the toxic substance used. He may, however, furnish information that other workers are affected similarly. Here, however, the physician must be guarded against simulation—not malingering—by the employee, as many of the phenomena of industrial intoxication are subjective. Neither the length of time employed nor freedom from previous attack while at work in the same industry are evidences against a diagnosis of industrial toxemia, as susceptibility and immunity, natural or acquired, are factors of the greatest importance in the whole group of industrial diseases.

The workers and their families, the industrial managers and the insurance companies, all expect the general practitioner to be as familiar with the signs and symptoms of industrial diseases as with those in any other disease. Today the State requires accurate data and information on these questions in its legislative remedies, to distribute the cost and burden of industrial human wastage. It relies upon the medical profession to furnish these factors.

Not infrequently many of the illnesses and diseases met in the consulting room and in the sick-room are the results of occupational conditions, recent or remote. To overlook this cause is to treat symptoms only; to appreciate it is a long step toward accurate diagnosis. Every physician sees patients daily complaining of muscle, nerve and organ irritation due to conditions dependent upon overuse or abuse of the structure concerned in occupational duties. So, too, anemias, fatigue, headaches, eye strain, nose and bronchial irritation, all rising out of or aggravated by overheated workrooms, devitalized dusty atmosphere, lack of toilets and of drinking and washing facilities. When to these conditions are added poisonous dusts, fumes, gases and mineral substances, we have a series of causes that are direct and primary in much of the ill health among industrial workers. The more dramatic causes of this ill health, however, are the ones most generally recognized. This list is growing in Massachusetts.

During the year 1916, there were 182 cases of occupational diseases reported to the State Board of Labor and Industries. Seventeen of these cases proved fatal. This list included:

Diseases	No. Reported	No. Deaths
Anthrax	27	4
Benzol poisoning	8	5
Brass poisoning	1	
Caisson disease	15	
Fume and gas poisoning:		
Carbon monoxid	7	1
Hydrogen sulphid	1	1
Nitrous acid gas	4	2
Sulphur disulphid	1	1
Tri-nitro-toluene	3	2
Wood alcohol	1	
Lead poisoning	112	
Miscellaneous	2	1
Total	182	17

The following summary shows that the recognition of industrial diseases is receiving the attention of an increasing number of physicians:

Cases Reported	Oct. 1916	Nov. 1916	Dec. 1916	Jan. 1917	Feb. 1917	Mar. 1917	Total
Lead poisoning	11	17	13	26	25	26	118
Brass poisoning		2		16			18
Wood alcohol		1				1	2
Aniline oil			1		1	1	3
Nitrous fumes	1	1					2
Phenol poisoning						1	1
Carbon disulphide						1	1
Caisson disease		1	2		1		4
Anthrax			3	1		2	6
Total	12	22	19	43	27	32	155

Each case of occupational disease reported to the State Board of Labor and Industries is investigated by an Industrial Health Inspector of the Department. This investigation includes a sanitary inspection of the place of employment and a description of the process of manufacture, including a tabulation of each poisonous substance used and the nature of the dust, fumes and gases generated in the process of manufacture. Many fatal cases have been brought to autopsy by the medical examiner of the district. A description of some of the various industrial diseases met in occupational life in Massachusetts will be considered in subsequent papers. The point that should be brought home to every practitioner of medicine in this State is the necessity today of recognizing occupational life as a possible source of many of the conditions of sickness and ill health prevailing among industrial workers, and, secondly, that industrial hygiene offers an exceptional opportunity for applying most effectively the truths of preventive medicine.

The State Board of Labor and Industries is most anxious to coöperate with physicians, employees, and manufacturers in reducing the hazards to health and life in industrial establishments.

The following summary of the work of the Department for the year 1916 shows to what extent this coöperation is possible:

More than 30,000 inspections of industries were made, and over 11,000 reinspections. 12,000 orders were issued to correct conditions existing contrary to law. The inspectors visited 2300 homes of persons who applied for license to do work in the home. More than 3000 complaints against unsanitary and other working conditions were investigated and corrected. It was necessary to resort to prosecution in 360 cases. During the year the Board issued Rules and Regulations governing working conditions in foundries, in compressed air, in establishments where exposure to benzene derivatives is a factor in causing ill health, and rules for the protection against anthrax, as well as rules for safeguarding machinery. Circulars of instruction on the protection of injury to eyesight, and a circular on dangers to dust are being distributed throughout the industries. Rules have been formulated for the protection of workmen engaged in building operations.

In the creation of these various sets of Rules and Regulations for the protection of the employees, the Board had the coöperation of both employers and employees in formulating rules so as to meet best actual working conditions in the various industries affected by the Rules.

Copies of any of these publications will be sent to any physician desiring the same by applying to the Board at its office, 1 Beacon Street, Boston.

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Medical Progress.

REPORT ON DERMATOLOGY.

By John T. Bowen, M.D., Boston.

X-RAY IN HYPERTRICHOSIS.[1]

Freund of Vienna, in 1897, was the first to call attention to the removal of superfluous hair by the x-ray, reporting, together with Schiff, some more or less successful results. At first there was, as is usual with new methods, much enthusiasm displayed; later it was found that it was difficult to effect a complete cure, and that atrophy and telangiectases were a not uncommon result. Today there is a difference of opinion, some condemning the process unreservedly, others claiming that it has a place in certain selected cases. Pusey's judgment is concurred in by most dermatologists and roentgenologists, namely, that although practically satisfactory results can be obtained in about one-half of the cases, the results are so uncertain and the possibilities of harm are so great, that the treatment should be undertaken only in extreme cases, or with the understanding that if the exposures are kept within the limits of safety, the outcome is extremely doubtful.

In hypertrichosis of the face, the problem is to remove the hair permanently, without subsequent disfigurement. This is difficult, as the dose necessary for complete depilation is very likely to produce an erythema, which in turn in many cases is followed, perhaps, after a considerable interval, by telangiectases, atrophy and wrinkling. Many roentgenologists, while refusing to use the x-ray in facial hypertrichosis, apply it without hesitation for removing hairs from other parts of the body, such as the arms, legs, axillae, etc., as in these places a little atrophy would not be important. In the case of the leg, however, the extent of surface and its convexity render the method rather impractical. The use of a filter is decidedly desirable, from a cosmetic point of view. Coarse hairs are more readily destroyed than very fine white or lanugo-like hairs.

MacKee states that the medico-legal aspect of the treatment of hypertrichosis, especially of the face, is of very great importance, as malpractice suits have been relatively frequent; the verdicts are most often in favor of the defendant.

The writer's own views on the subject are that, although a perfect result is possible, wrinkling of the skin is very likely to result. It may be slight and of little cosmetic importance as compared with the preceding hypertrichosis, or it may be very disfiguring. Hence he advises against this method except in unusual cases. He warns against the danger from a medico-legal point of view, of yielding to the entreaties of excitable neurotic individuals, who are, perhaps, rendered almost insane from the worry caused by the deformity. It is better to try to dissuade the patient by explaining the tediousness, length of time, uncertainty and danger of the method, and a signed agreement in which the patient agrees to assume all responsibility, although of value, will not prevent the bringing of a suit for malpractice.

Radium has been advocated by Heidingsfeld and others. It will cause depilation the same as the x-ray, but it is suitable only for small areas, and these as a rule may be better treated by means of electrolysis. Although it has been claimed that radium may be used in these cases with perfect safety, the fact remains that a falling of the hair is produced by radium in exactly the same way as by the x-ray, and that the danger of complications and of disfigurement is about equal in degree. In all of these cases the possibility of idiosyncrasy must also be taken into consideration.

MONILETHRIX.

MacKee and Rosen[2] report six cases of this unusual affection of the hair, together with the results of their studies and investigations. Briefly, monilethrix is, with few exceptions, an affection of the hair either noticed at birth, or developing a few months subsequently. The hair becomes brittle and lustreless, and breaks off before it has attained any considerable length, and is attended with a condition of keratosis pilaris in almost all cases. The affection becomes more noticeable as the children grow older, and may involve the entire scalp, or only portions of it. The essential and notable feature of this disease is the condition of the affected hairs, for not only are they short, brittle and lustreless, but they are seen to be beaded at regular intervals, and the nodes are usually of the same size and shape. Contrary to what might be supposed, the thick part of the hair, or node, is the normal part, whereas the constricted part is the atrophic or pathological portion of the hair. Therefore, strictly speaking, it is improper to use the term "node." There may in some cases be more or less scaling of the scalp in addition and, after a time, a general atrophy. The patient's health is usually good, and there are no other congenital anomalies. There was a distinct hereditary influence in one case reported, 17 individuals in 5 generations of the same family being affected. While the causation of the disease is unknown, the tropho-neurotic theory is generally accepted. In certain reported instances, beaded hairs have been found in the eyebrows, eyelashes, bearded face and axillae, as well as in the pubic region. The affection was congenital in all of the author's cases, and in 10 of the complete reports found in the literature.

The histological findings of the various authors are much the same. There is a moderate or slight inflammation of the corium, a marked dilatation of the follicular orifices with a pronounced hyperkeratosis, giving rise to a horny plug. All the histological investigations have revealed nodes and constrictions in the follicular portion of the hair also. The papilla, bulb and matrix of the hair are normal.

Etiologically the microscopic findings do not afford us much light. A parasitic, mechanical and tropho-neurotic theory has, in turn, been advanced. There is nothing in support of the parasitic theory, and little in favor of the mechanical. The tropho-neurotic theory seems most plausible, the alternate thick and thin parts of the hair being explained by assuming an alternate normal and abnormal activity of the cells of the hair bulb, yet why the cells should not proliferate regularly it is difficult to explain. In favor of the view that the intermittent growth is due to some abnormal nerve control of the hair bulb itself is the fact that the moniliform condition has occurred after a mental shock, and epileptic seizures. Cases have occurred also after influenza. Behrend suggested that the thick parts of the hair were the growth during the day and the constrictions the growth during the night, and it may be that the loss of nerve control during sleep causes a temporary cessation or diminished activity of growth in the cells of the hair bulb. It has also been suggested that some vasomotor change at regular intervals in the hair papilla might account for the intermittent growth.

With regard to prognosis and treatment, various local stimulating agents have been tried, but without benefit. A temporary depilation by means of the x-ray was thought to have cured one case, but has failed in others. Spontaneous recovery has never occurred, although several writers have noted improvement as the individual grew older. In a word, at the present time the affection must be regarded as incurable.

PASTES.[3]

Pastes are mixtures of powders with fats, differing from ointments in the much larger amount of powder that is incorporated in the compound, and its consequently thicker consistency. Montgomery gives a good résumé of the indications for these preparations. The best known of the pastes is Lassar's, composed as follows:

Acid salicyl.	1.00
Amyl. maidis	12.50
Zinc oxid.	12.50
Vaselin.	25.00

This preparation, on account of the large amount of powder it contains, offers the advantage of porosity and absorbability to a greater extent than do ointments, and also adheres firmly to the surface of the skin, and acts as a protective. The salicylic acid is supposed to act as an antiseptic. This paste mass absorbs the discharges from oozing surfaces, and this effect may be increased, when the discharges are copious, by dusting boracic acid or talcum powder over the preparation. The paste must not be removed by force, but by the application of a bland oil, when this is necessary. Besides these oozing eczemas, the irritable papular forms often do well under pastes, as the latter afford protection and act as a splint. Pastes, unlike salves, do not tend to retain the heat of the skin, and prevent the evaporation of sweat. They are also valuable in the case of people whose skin is rebellious to any fats in the form of ointment.

Oxide of zinc and starch are the powders most frequently used in compounding pastes. Starch has been used to such an extent in Germany that one journal urged that it should not be employed in skin troubles during the present war on account of its value as a food. It has a particularly bland action on the skin, and is less drying than zinc oxide. A softer, smoother paste may be made up as follows:

Amyl. maidis	
Zinc oxid. āā ...	20.00
Vaselin.	60.00

Various medicaments may be added in powder form to these pastes, such as sulphur, naftalan, etc. Naftalan is a Russian coal tar product, a black mass of the consistency of vaseline, which may be made into the following paste:

Naftalan	50.00
Zinc oxid.	
Amyl. maidis āā .	25.00

Now that the war has interfered with the supply of naftalan, tumenol, a mild antipruritic tar preparation, may be substituted in acute eczema in the strength of one to three per cent., in subacute eczema in ten. Montgomery recommends the following modifications of Lassar's paste in superficial inflammations:

Acid salicyl.	1.00
Amyl. maidis	12.50
Zinc oxid.	12.50
Glycerin.	25.00

This preparation is of the consistency and color of thick white paint, which spreads well, remains permanently in place, and does not soil the clothing. The preparations containing glycerine make the skin damp and clammy on account of its hygroscopic character, which is often an advantage in hot weather. Many people, however, have a distinct idiosyncrasy to glycerine, and in these cases it cannot be used. None of the pastes should be used on any of the hairy portions of the body. Montgomery has a good word still for the gelatine pastes, which were quite in vogue at one period. He thinks they are wonderfully effective in certain eczemas and ulcers of the leg, and in pruriginous affections in other places, where it is necessary to exclude the air and to protect the part from the injurious effects of scratching. He employs the following:

Gelatine	46.00
Zinc oxid.	28.00
Glycerin	12.00
Aquae	114.00

The water should first be heated and the gelatine dissolved in it, then the glycerine and zinc added, and stirred until cold. Before applying, the jar containing the preparation is placed in hot water to liquefy the contents, which are then spread on the part and covered, before they cool, with shreds of absorbent cotton. Very intensely pruritic eruptions are often controlled in this way.

THE RESULTS OF PERMANENT DÉCOLLETAGE.

Brocq[4] discusses the cutaneous effects of the fashion that has prevailed among women during the last three years, of exposing a triangular space on the neck and chest, of which the base is formed by the clavicles and edge of the sternum, and the apex is situated between the breasts. This custom has given rise to various alterations of the skin, since this structure is very delicate at the upper part of the presternal region, almost if not quite as much so as that of the face. When this region is exposed, without any protection, to the action of atmospheric agents,—air, wind, dust and sun, the skin may quickly become much altered. In those susceptible to certain dermatoses, this region may become a real *locus minoris resistentiae,* and may be the seat of a simple pruritus, of a circumscribed pruritus with lichenification, of various sensory disturbances, of a true vesicular eczema, and of seborrheic eczema or psoriasiform parakeratosis. The most common effects of the exposure of this region are, first, ***pigmentary changes***, varying from a *café au lait* color to deep red or brown, sharply outlined, usually most pronounced at the centre or towards the base of the triangle. Sometimes this area is so deeply pigmented that complete décolletage is rendered impossible on account of the disfiguring contrast. *Circulatory disturbances* are next in order, consisting of a simple erythema or of a fine network of telangiectasis, similar to those that sometimes develop on the face. In a like manner, these vascular lesions of the neck and chest are sometimes subject to congestive flare-ups, when the region suddenly becomes excessively reddened, somewhat puffed up, and then gradually becomes more normal. These outbreaks may be due to external causes, or to emotion, digestive disturbances, etc. *Changes in the texture of the skin* are shown by an apparent thickening, dilatation of the pores, and loss of softness and polish. Occasionally it seems atrophied and glistening. A *keratosis* of the mouths of the follicles, a follicular cornification, giving the skin a rough and soiled appearance, sometimes results. *Acniform lesions,* consisting of comedones, or abortive papules and pustules are also common, and lastly *acute artificial eruptions* and *definite dermatoses* added to the traumatic lesions. The sterno-clavicular triangle is a region in which the normal resistance of the skin is especially weak, and hence an acute erythematous or vesicular dermatitis may be easily produced. Most women are ignorant of the fundamental principle that an inflamed skin should not be bathed with water, and especially not with soap and water, and should not be exposed without protection to the continued action of the air and sun. In this affection individual susceptibility plays an important part, as those exposed are affected in very varying degree. It illustrates the proposition that irritating external agents diminish the power of resistance of the skin in certain cases, so that dermatoses of internal origin may develop at these sites. It is an interesting question why this sterno-clavicular region is more readily irritated than the neck, which is subjected to the same external irritants with impunity. The writer thinks that it may be due to the special structure of the cutaneous tissues in this region. The skin here is extremely fine, quite vascular, stretched over the underlying bony structures, and rich in sebaceous glands; it is a favorite seat of seborrhea. It is much more like the skin of the face than that of the neck.

As to the therapeutic measures, protection of this region from all external contact is, of course, essential. Thin gauze or muslin coverings are not sufficient, a thicker, more compact dressing is required, and a thick paste, after the manner of Lassar's zinc oxide paste, should be spread on the skin, over which talcum powder is liberally sprinkled.

DIAGNOSIS AND GENERAL TREATMENT OF SYPHILIS.

Fordyce[5] read a paper with the above title at the Congress of American Physicians and Surgeons in Washington May 9 and 10, 1916. Fordyce's authority on the question of syphilis in this country is so great that his conclusions must be looked upon as of the utmost importance. He emphasized the importance of an early diagnosis of infection, and states that, unfortunately, clinicians are still met with who decry the modern methods of precision, and claim that the trained observer can determine by his eye and sense of touch all that can be revealed by laboratory procedures. That this position is a false one is shown by the fact that patients present themselves for syphilitic involvement of the central nervous system, an interstitial glossitis, or an aortitis, who had been told years before by the best known syphilographers that their lesion was only a chancroid, and that they had nothing to fear as to future results so far as this manifestation was concerned. It is well known now that the soft sore often contains the syphilis parasite, and that syphilitic manifestations from it often do not develop for two or three weeks, or are often entirely absent. Hence an examination for the spirochete should be made in every doubtful lesion, and if it is not found at first, repeated examinations should be resorted to, including the Wassermann reaction. It is often possible and of great importance to discover the parasite in initial lesions before the clinical characteristics appear, as early treatment and thereby a better prognosis may be rendered possible. The dark-field illumination is not difficult with a little training, and the syphilis parasite is easily distinguished from other organisms. Success in finding this is in great measure dependent on the care with which the serum is taken for examination—it should be from the depths of the lesion. In cases of doubt the examination should be repeated on successive days, avoiding the use of antiseptic washes, ointments, etc.

The time of appearance of the Wassermann reaction varies, in different individuals, from the fourth to the seventh or eighth week after exposure. It is usually definitely established with the appearance of the rash. It is emphasized that the treatment must be individual, as some patients treated under the older methods have a negative blood reaction, while others who have had numerous courses of salvarsan and mercury obstinately retain their positive reaction. In some cases it is impossible to convert a positive into a negative reaction, without endangering the patient's health. Fordyce insists that, although the interpretation of the Wassermann reaction is as important as that of the clinical phenomena, reliance must not be placed on its presence or absence alone. In cases of ocular, vascular, visceral or nerve syphilis, positive clinical signs may be present, while the Wassermann reaction is negative.

With regard to treatment, the object is the destruction of the greatest number of spirochetes in the shortest possible time. Experience has shown that this is best accomplished in the early stage, and by means of the combination of salvarsan and mercury. Salvarsan has little influence on the organisms in the test-tube, but is actively germicidal in the human body. It has been demonstrated empirically for many years that mercury has a curative effect in syphilis, and presumably this effect is a direct one. Potassium iodide has no effect on the early lesions of syphilis, and a very slight effect in rendering the Wassermann reaction negative. Yet it has a marked local therapeutic value, as in "gummata" and in periosteal lesions. Salvarsan is most useful in primary and secondary syphilis when the organisms are abundant, yet in gummatous and periosteal lesions and all the active manifestations of late syphilis, the drug is almost as effective therapeutically as in the early contagious period, especially in the case of persons who have been treated for, years with mercury and potassium iodide, and have become more or less immune to the action of these drugs. Fordyce's method of treatment is to give a course of mercury with the salvarsan, the amount of each agent depending upon sex, weight, and general condition. The salvarsan is given in courses of 5 or 6 injections in doses of 0.3 gm. to 0.5 gm. for men, and 0.25 gm. to 0.4 gm. for women at intervals of one week to ten days. The mercury is given in the form of injections, in courses of 20-30 injections daily or every other day when the bichloride is used; once a week in a series of ten or twelve injections when an insoluble preparation is employed. Both salvarsan and mercurial courses are followed by a rest period of six weeks, and then the procedure is repeated. While frequent Wassermann tests are made, the treatment is not interrupted on account of a negative reaction, until the full amount has been given. When there are visceral lesions the salvarsan should be used in small doses, repeated at intervals regulated according to the individual case. When there are cardiac complications, mercury or mercury and potassium iodide should precede the injections.

With regard to the reactions following the use of salvarsan, Fordyce divides them into two categories,—the immediate and delayed. In the immediate reactions, the symptoms usually come on during the injections, and are anaphylactoid in character probably. They are cyanosis, flushing, fullness in the head and slight dyspnea, with occasionally vomiting, or attacks of severe pain in the lumbar region. The delayed reactions appear after twenty-four hours, three days, or even longer, and are usually expressed by gastro-intestinal symptoms, preceded by a chill, and characterized by vomiting and diarrhea with increased temperature, or there may be simply malaise for a few days, and then active vomiting, fever, and a rash or jaundice, with, rarely, suppression of the urine. Fordyce warns against repeating the drug in cases where a dermatitis has been present, as he has seen in these circumstances an extensive exfoliative dermatitis develop, which ended in death. In his own experience there have been two deaths that could be directly attributed to salvarsan. Fordyce considers that it is important to examine the urine from time to time during the administration of mercury, inasmuch as this drug has a great affinity for the renal cells. It has been estimated that the toxicity of the different salts is proportional to the amount of pure mercury contained. Inunctions are very efficacious and safe, but unless in the hands of a professional rubber, uncertain. The results of treatment by intramuscular injections of mercurial salts are more rapid after the use of a soluble than an insoluble preparation, as the former is more quickly absorbed and exhibits less local reaction. The disadvantages of the injection of the soluble salts are that they have to be given daily, whereas the insoluble preparations form a dépôt of absorption and require to be administered at weekly intervals only. On the other hand, the insoluble salts have the disadvantage of exposing the patient to sudden absorption and mercurial poisoning.

Fordyce's conclusions are that the fate of the syphilitic individual depends upon the early diagnosis of his infection and the intensity with which treatment is carried out in the first six months, and that modern aids to diagnosis, such as the dark-field illumination and the Wassermann test, have proved of great service in the accomplishment of this purpose. The Wassermann test is of especial value in all conditions of obscure etiology, referable to the cardiovascular system, cerebrospinal system, or viscera, in which syphilis might be a factor, and in cases with obscure clinical symptoms, such as neurasthenia, febrile attacks, rheumatic pains, etc. But its interpretation requires as much training and experience as does the interpretation of the physical signs. In examination of the spinal fluid, the Lange or colloidal gold test should be performed in addition to the Wassermann reaction and a cytological and chemical examination. In secondary syphilis when the early rash is present and the Wassermann positive, it is best to employ first several injections of a soluble mercurial salt, followed by salvarsan. The possibility of an involvement of the nervous system should always be kept in mind in secondary syphilis. The most frequent symptoms are irregularity of the pupils, persistent headache, and optic neuritis or auditory disturbance. The iodide of potassium has still a very important place. In tertiary syphilis with a persistent positive Wassermann reaction without involvement of the central nervous system, the iodide is very valuable, and its action on bone and periosteal lesions, accompanied by severe pain, is more rapid, both in relieving pain, and in reducing the neoplasm, than that of any drug in the pharmacopeia.

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Book Reviews.

The Surgical Clinics of Chicago, February, 1917. Vol. 1, No. 1; with 83 illustrations. Published bi-monthly. Philadelphia and London: W. B. Saunders Company.

The first volume of The Surgical Clinics of Chicago made its appearance in February, 1917, in the same general size, shape, printing and paper as the Murphy Clinics, which preceded it. The color of the binding is changed, but a much more important change is that it seems henceforth to be a publication of the combined Chicago hospitals, although a statement of this fact is lacking.

The contents of the February number consists of 12 chapters, by as many different surgeons. Many of the chapters consider more than one subject; all are admirably illustrated. The hospitals represented are: the Presbyterian, the Mercy, the Augustana, the Chicago Polyclinic, the Cook County, the Wesley and the North Chicago; and the surgeons are Drs. Arthur Dean Bevan, Albert J. Ochsner, E. Wyllys Andrews, Lewis L. McArthur, Dean Lewis, Carl Beck, D. B. Phemister, D. N. Eisendrath, Kellogg Speed, Edwin Warner Ryerson and Allen B. Kanavel.

The subjects vary widely; they include hernia, gall-stone disease, goiter, plastic surgery, nerve suture, gastric surgery, joint infections, transplantation of fascia lata in extrophy of the bladder, intracranial surgery, tendoplasty for wrist-drop, echinococcus cyst of the liver, and bone lesions.

It is obvious that the experiences of a dozen surgeons must, in the nature of things, be wider and more varied that that of any single surgeon, no matter how active the individual may be. In this way, the Chicago Surgical Clinics gives a wider field than its predecessor, and the same thing is true, to perhaps a greater degree, of the varying individuality of the men. A bi-monthly publication representing the best surgery of Chicago should certainly be extremely interesting and a valuable addition to our surgical libraries. It should become familiar to all active surgical practitioners and teachers.

The Surgical Clinics of Chicago. April, 1917. Vol. 1, No. 2; with 99 illustrations. Published bi-monthly. Philadelphia and London: W. B. Saunders Company. 1917.

The April number, of somewhat more than two hundred pages, contains fifteen chapters, written by as many surgeons, some chapters including several sub-headings. The contributors are Drs. E. Wyllys Andrews, Carl Beck, Arthur Dean Bevan, Carl Braden Davis, Frederick G. Dyas, Daniel N. Eisendrath, Louis A. Greensfelder, Albert Edward Halstead, Malcolm L. Harris, Allen B. Kanavel, Hugh McKenna, Arthur J. Ochsner, Nelson Mortimer Percy, D. B. Phemister, John Ridlon and David C. Straus.

As usual, the monographs cover a wide variety of subjects: they are well illustrated, and in most instances well written. They are always stimulating and offer many practical suggestions as to technic and surgical procedure. The publication is interesting and well worth reading.

Traumatic Surgery. By JOHN J. MOORHEAD, B.S., M.D., F.A.C.S., Adjunct Professor of Surgery, New York Post-Graduate Medical School and Hospital; Visiting Surgeon, Harlem Hospital; Attending Surgeon, Park Hospital; Adjunct Attending Surgeon, Post-Graduate Hospital; Chief Surgeon, Interborough Rapid Transit and New York Railways; Fellow, Academy of Medicine; Lieutenant, Medical Reserve Army Corps. With 522 original illustrations. Philadelphia and London: W. B. Saunders Company. 1917.

Moorhead's book is an extended, enlarged, well illustrated and comprehensive accident and injury manual. It has seven hundred and more pages; two hundred and fifty are devoted to fractures and dislocations—a proper and adequate proportion; on the whole, the treatment advised throughout the book is excellent. The chapter on Infections of the Hand is based upon the work of Kanavel; shock is viewed from the standpoint of Crile, not from the more recent work of W. T. Porter. This is unfortunate, since the latter has simplified both the conception of shock and its treatment. The book contains interesting chapters on the Traumatic Neuroses and Medico-Legal Phases, and X-Ray Burns.

The author has covered thoroughly the field which he has laid out for himself, and he has wisely restricted himself to this field. He has written a good book, which should become a favorite volume.

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THE DIAGNOSIS OF TUBERCULOSIS IN RECRUITS.

In view of the approaching assembling of the new armies under the draft, it becomes urgently necessary to consider the irreparable loss to the nation brought about by the undue proportion of tuberculosis in the classes which will come up for national service; and we have already commented editorially upon this subject in the issue of the Journal for July 12 (Vol. clxxvii, No. 2, p. 56). Among the masses of humanity from which selection will be made, there is a fixed number who have, or have had, pulmonary tuberculosis, and the problem for the examining surgeon is how to judge wisely and not include in the draft any individuals who could possibly be the subjects of latent infection. Diagnosis, often a most difficult matter in civil life, has evidently gathered new difficulties in the case of soldiers. For example, the known facts of tuberculosis—that infection, latent or acute, exists in most adults, that immunity is acquired, and that the number of non-fatal lesions increases with age—are somewhat difficult to reconcile with the rule of the army medical examination. Thus in England, stirred by the experience of France, the Recruiting Boards are forbidden to take into the army men "who have been under treatment in a sanatorium, and men who have been notified as suffering from tuberculosis." That the first should be rejected is clearly right, although ex-sanatorium patients have found their way into the army and have done good work; but it is asked, especially by French physicians, whether the rejection of all the notified men is quite consistent with the idea that tuberculosis is so universal as alleged, and that it is often healed or cured? It seems evident that, if physicians are prepared to accept the doctrine that 95% of adults have been infected, army examiners ought, in consistency, to accept the "healed" and even the "arrested" cases. Nevertheless, in England the rule rejecting them is rigid, but French opinion appears to justify the acceptance of the "healed" cases, if by "healed" be meant a cicatrized lesion, and not one that is continually passing into active tuberculosis.

There is another form of rejection which, in France, is regarded as seriously faulty in respect to diagnosis. We mean those cases classified as "suspicious," or rather, as tuberculous "suspects." According to Sergent, the diagnosis "suspected" tuberculosis indicates a small amount of concrete knowledge. Upon examination, most of these men turn out to be healthy, or instances of pleurisy, bronchitis, trench coryza, dyspepsia, mitral stenosis, simple fatigue of body and mind, with a few that are simply shamming. Examples of such diagnostic errors, resulting from a wrong interpretation of x-ray plates and physical signs, are so common in the records of the army clearing stations, or *centres de triage,* that some examiners, like Rist, propose a sole criterion of tuberculosis and, therefore, a sole cause of rejection, and that is the tubercle bacillus in the sputum. This is too rigorous, and also throws open the door too wide; for the bacillus may not be found, and, on the other hand, there are physical signs which are sufficient. The most trustworthy, Sergent believes, are the following: dulness, hemoptysis, increased fremitus, "clicks," and a veil or shadow at the apices, fixed, not modified by cough, with striae and fly spots on the plate. These are evidences of a lesion of the parenchyma of the lungs. A pleural lesion shows the same veil or shadow, but it is movable; there is inequality of the pupil on the affected side, with friction sounds, and increased vocal fremitus, tracheobronchial adenopathy, and, curiously enough, tubular breathing, which in these cases is not a sign of pulmonary cavity, but of nasal obstruction. The x-ray pictures are telescopic; they show cavities not discovered by the most careful auscultation, but they do not enable us to ascertain whether a lesion is active or latent, whether it is pleural or parenchymatous, whether the disease is in a stage of evolution or of decline. Unfortunately this is a question of primary importance to the army surgeon.

The proportion of veils or apical shadows on radioscopy and on the x-ray plates was 63%. Apparently they are signs of healed lesions or of pleurisy of the apex. It is a significant fact that most of the recruits were rejected on this evidence; when reëxamined by experts at the *centres de triage* they were sent to the colors. This particular error is chiefly the work of examiners, who look at the men through the spectacles of the tuberculophobe. His tendency to see tuberculosis in every abnormal respiratory sign is a fallacy which may take root here. Many of the classical signs—harsh and rough breathing, weak breathing, and bronchophony,—have the misfortune, shared by most constitutional signs,—anemia, cough, fever and weakness,—of being somewhat equivocal. The evil may be overcome by careful preliminary definition and history-taking, but the man of routine, without time for individual selection, does not supply these things, and the original application of the words to a particular phase of bronchial disorder seems to have clung about them with a misleading effect. The result is that great numbers of sound men are rejected, and two classes of bugbears have arisen,—the true and the false tuberculous. As is usual with definitions and classifications, however, this distinction between true and false cases does not exactly represent the actual fact. True and false tuberculosis overlap and blend into each other. The diagnosis in all these cases is very difficult. It is a question how it is to be done without national loss through mistakes.

REPORT OF COMMITTEE ON SOCIAL INSURANCE.

In another column of this week's issue of the Journal is published in full the text of the recently issued Constitutional Convention Report (No. 327) on Social Insurance. To this majority report of the committee is appended also the minority report of one of its members. Both these documents should be of distinct interest to members of the Massachusetts Medical Society, many of whom have appeared at various hearings before the convention at the State House. The importance of this report is obvious in view of the bearing which it has on industrial health insurance in relation to the medical profession.

MEDICAL NOTES.

Swedish Health Rates.—Statistics of the population of Sweden for the year 1916 have been published, and the birth and death rates are the lowest ever recorded in that country. The birth rate per thousand was 21.14 and the death rate was 13.55.

Infantile Paralysis in Vermont.—There have been about eighty cases of poliomyelitis in Vermont this year. Because of the prevalence of the disease, Lieut. Col. Wolf, commander of the camp at Plattsburg, N. Y., has forbidden members of the garrison or training camp to visit Vermont without permission.

WAR NOTES.

Red Cross Unit for Roumania.—The sailing of a Red Cross unit to Roumania is announced. It is headed by Henry Watkins Anderson of Richmond, Va., who will make an investigation of the sanitary and health conditions of the country and institute relief work among refugees. A special appropriation of $200,000 has been voted to provide supplies of all kinds. The unit consists of twelve doctors and twelve nurses. One of the number is Dr. Francis W. Peabody of Boston.

Appointment of Boston Health Officer to Sanitation Camp.—Dr. M. Victor Safford, United States Health Service, who has served at the Boston immigration station for about fifteen years, has been ordered to Columbia, S. C., to serve in the sanitary department of the military camp at that location.

Boston Liner to Become Hospital Ship.—The *Prince Arthur,* for the last seventeen years running between Yarmouth, N.S., and the Port of Boston, has been commandeered by the British government to be used as a hospital ship. The *Prince George*, a sister ship, is already in English waters, having been taken over by the government for the same purpose a short time ago.

Gift to Red Cross by Elks.—The Benevolent and Protective Order of Elks has voted to appropriate $1,000,000 to the Red Cross to be used in establishing base hospitals behind the firing lines, in taking care of the families of soldiers, and in aiding disabled men to learn a new trade or profession. The hospital units to be established by the Elks are to be marked with the name of the order and will be maintained by the Government and the American Red Cross. Each hospital staff will be made up of twenty-six surgeons, sixty-eight nurses and one hundred and fifty orderlies, and will cost about $60,000 to equip.

Appointment of Massachusetts Men as Naval Surgeons.—The following Massachusetts doctors have been recommended by Secretary Daniels to receive appointments as assistant surgeons of the navy: Thomas J. Kennedy, John W. S. Brady, Lewis W. Johnson, Roy J. Heffernan, Edward P. Bugbee, Joseph W. White, Francis E. O'Brien, Samuel Segal, Jr., Robert E. S. Kelley and Max H. Braff.

Trachoma in the Army.—The Public Health Service has issued a warning to recruiting officers to guard against accepting applicants who may be suffering from trachoma. Its contagious character and its capacity to blind invalid men are urged as reasons for refusing to accept men who have contracted it.

War Relief Funds.—On July 28 the totals of the principal New England war relief funds reached the following amounts:

French Wounded Fund	$243,351.20
Armenian Fund	207,304.42
French Orphanage Fund	116,817.64
Surgical Dressings Fund	112,046.01
Serbian Hospitals Fund	99,591.82
War Dogs' Fund	861.25

BOSTON AND MASSACHUSETTS.

Week's Death Rate in Boston.—During the week ending July 21, 1917, the number of deaths reported was 184, against 189 for the same period last year, with a rate of 12.42, against 12.96 last year. There were 23 deaths under one year of age, against 37 last year.

The number of cases of principal reportable diseases were: diphtheria, 59; scarlet fever, 16; measles, 74; whooping cough, 18; typhoid fever, 3; tuberculosis, 59.

Included in the above were the following cases of non-residents: diphtheria, 5; scarlet fever, 4; tuberculosis, 6.

Total deaths from these diseases were: diphtheria, 4; measles, 5; typhoid fever, 1; tuberculosis, 21.

Included in the above were the following deaths of non-residents: diphtheria, 2; measles, 2; typhoid fever, 1; tuberculosis, 2.

Adams Nervine Asylum.—The fortieth annual report of the Adams Nervine Asylum, Jamaica Plain, states that the total number of patients under treatment during the year was 217, of which 47 were men and 170 women. There were discharged during this period seven as recovered, 107 as relieved, and 50 as not relieved. The training school has 16 pupil nurses.

Board of Health, Chelsea, Mass.—According to the recently published annual report of the Board of Health of Chelsea, Mass., the mortality rate for that city for the year 1916, was 14.40; excluding non-residents it was 10.02. The number of deaths under one year was 111, which is 16 more than last year.

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The Massachusetts Medical Society.

WORKMEN'S COMPENSATION.

In accordance with the vote of the Council, June 12, 1917, namely: *Voted*. That a committee on Workmen's Compensation be appointed by the Chair, to consist of five members of the Council and one member from each District Society. The President has appointed the following committee:

A. N. Broughton, Jamaica Plain, *Chairman*.
M. A. Tighe, Lowell.
W. A. Dolan, Fall River.
John Warren, Boston.
F. W. Snow, Newburyport.
E. S. Osborne, West Dennis.
C. S. Chapin, Great Barrington.
W. Y. Fox, Taunton.
E. F. Cody, New Bedford.
W. H. Merrill, Lawrence.
W. T. Hopkins, Lynn.
F. A. Millett, Greenfield.
G. A. Moore, Palmer.
C. T. Cobb, Northampton.
D. C. Dennett, Winchester.
J. A. Mehan, Lowell.
G. W. W. Whiting, Somerville.
B. E. Hamilton, West Roxbury.
N. S. Hunting, Quincy.
F. E. Wheatley, North Abington.
E. L. Young, Jr., Boston.
E. L. Hunt, Worcester.
F. H. Thompson, Fitchburg.

Walter L. Burrage,
July 26, 1917. *Secretary*.

Miscellany.

THE COMMONWEALTH OF MASSACHUSETTS.

Report of the Committee on Social Insurance.

The Committee on Social Insurance has had referred to it twenty-five resolutions and petitions, as follows:

Doc. No.	
12.	Resolution relative to the providing of non-contributory health insurance.
13.	Resolution relative to the providing of non-contributory old-age pensions.
35.	Resolution relative to providing for contributory old-age insurance.
36.	Resolution relative to providing for contributory unemployment insurance.
37.	Resolution relative to providing for non-contributory accident, sickness and invalid insurance.
38.	Resolution relative to state pensions.
39.	Resolution authorizing the Commonwealth to insure persons or property.
52.	Resolution for a special tax to provide pensions for the aged and needy.
54.	Resolution providing for a state fund for workmen's compensation.
107.	Resolution to provide for social insurance by the Commonwealth.
108.	Resolution relative to creating a state fire insurance fund.
109.	Resolution authorizing compulsory insurance of employees.
110.	Resolution authorizing state insurance of workers against accidents, sickness, invalidity, old age and unemployment.
111.	Resolution providing for compulsory death benefits for dependents of persons engaged in the public service in times of war and national or state emergency and of persons engaged in hazardous employments at all times.
112.	Resolution giving the General Court power to enact laws for the protection of the lives, health or safety of workers.
113.	Resolution relative to creating a state fund for workmen's compensation insurance.
251.	Resolution relative to the establishment of a system of non-contributory health insurance.
252.	Resolution relative to the establishment of health insurance for workingmen.
253.	Resolution relative to establishing a system of non-contributory old-age pensions.
254.	Resolution relative to the establishment of a system of old-age pensions.
255.	Petition of the Massachusetts State Branch of the American Federation of Labor, accompanied by resolution providing for the establishment and maintenance of a system of old-age pensions.
256.	Resolution to empower the General Court to make absolute the liabilities of casualty insurance companies to persons injured by accident.
257.	Resolution relative to pensions to dependents of those suffering from cancer or tuberculosis.
258.	Petition of the Massachusetts State Branch of the American Federation of Labor, accompanied by resolution providing that employers shall insure in a public fund for the benefit of injured employees.
259.	Resolution relative to the establishment of a state fund for workmen's compensation.

Of these, twenty-two may be described generally as dealing with some kind of social insurance or the machinery incident to its administration. One Resolution, No. 52, providing for a system of taxation to provide pensions for the aged and needy, would more appropriately be referred to the Committee on Taxation, and this Committee has been discharged from its further consideration. Another Resolution, No. 108, relative to creating a State Fire Insurance Fund, would more appropriately be referred to the Committee on Public Affairs, and this committee has been discharged from its further consideration. Another Resolution, No. 256, will be the subject of a separate report. This report deals with the twenty-two remaining resolutions upon the general subject of Social Insurance. The Committee does not consider that it is in any way charged with the duty of considering these propositions upon their merits but rather to determine if there is any doubt as to the constitutional power of the General Court to legislate upon all or any of them, and, if so, to consider the expediency of conferring such power upon the General Court, and if that question be decided in the affirmative, then to suggest such amendment or amendments to the Constitution as may be necessary to effect the purpose.

First.—As to the power of the General Court under the Constitution to legislate upon any of these propositions.

The Committee is not disposed to argue this question; indeed, any conclusion it might reach would, of necessity, be inconclusive. The Committee, however, is unanimous in believing that doubt does exist and contents itself, upon this point, with quoting from Bulletin No. 18, pp. 22, 25, prepared by the Commission of the Convention, as follows:

> Without inquiring too curiously whether the Massachusetts Supreme Court would uphold the constitutionality of a compulsory workmen's compensation act in the absence of a constitutional amendment, it seems proper to state that social insurance legislation, if compulsory, would be best safeguarded by an express constitutional amendment.
>
> . . . .
>
> In view of the recent Federal decisions referred to in this Bulletin it is obvious that "constitutional rigorism" is at an end and that the Fourteenth Amendment to the Constitution of the United States does not stand in the way of State legislation respecting health, unemployment and old-age insurance. Of course the question still remains as to whether such measures are in violation of the provisions of the Constitution of Massachusetts.
>
> That doubt could be removed by the adoption of an amendment expressly conferring upon the Legislature authority to provide for the several forms of social insurance herein considered.

Second.—The Committee is unanimously of the opinion that the Legislature should have the power to deal with these subjects in such manner as, in its wisdom, it may see fit.

> The "police power" has, in recent years, been greatly enlarged to meet changing conditions. As the Supreme Court has said:
>
> "Of course, it is impossible to forecast the character and extent of these changes, but in view of the fact that, from the day Magna Charta was signed to the present moment, amendments to the structure of the law have been made with increasing frequency, it is impossible to suppose that they will not continue, and the law be forced to adapt itself to the new condition of society, and, particularly to new relations between employers and employees, as they arise."

The Legislature has for many years shown a disposition to deal with the questions involved in the Resolutions that are before us. In 1887 it passed the Employers' Liability Law, the first to be enacted in the United States. In 1903 a commission was appointed to investigate the relations between employer and employee. The commission reported in 1904 with a draft of a compensation act which was not enacted into law. In 1907 a joint special committee was appointed to sit during the recess of the General Court to consider Workmen's Compensation among other questions. As a consequence, a voluntary law was enacted in 1908 and amended in 1909. In 1910, a commission was created "to determine upon a plan of compensating employees for injuries received in the course of their employment." This resulted in further legislation.

Chapter 127 of the Resolution of 1907 provided for a commission to investigate and consider the various systems of old-age insurance or old-age pensions or annuities proposed or in operation in this Commonwealth, or elsewhere, and to report upon the advisability of establishing an old-age insurance or pension system in the Commonwealth. This commission made its final report on January 15, 1910. It is very voluminous and is House Document No. 1400.

Chapter 106 of the Resolves of 1913 provided for the appointment of a committee to investigate the subject of pensions. The commission was known as the Commission on Pensions, and was to report in detail on the various systems under which pensions were then paid by the Commonwealth and by the counties, cities and towns therein, and to what persons and the amounts thereof. The Commission recommended, among other things, the advisability of a service pension plan under which the persons to whom pensions should be granted should make payments from their salaries or wages, and should consent to deductions therefrom as contributions to the fund from which pensions should be paid, and made a very voluminous report under date of March 16, 1914, House Document No. 2450.

Chapter 120 of the Resolves of 1914 provided that, for the purpose of securing information for the General Court for a proper consideration of the subject of old-age pensions, the Director of the Bureau of Statistics be required in connection with the taking of the decennial census in the year 1915 to transmit certain statistical information to the General Court, including the number of persons 65 years of age and over within the Commonwealth, and their length of residence, the number of dependent persons of all ages being supported in the various public and private institutions throughout the Commonwealth, the number of persons of all ages in the various cities and towns of the Commonwealth who are receiving aid from any public source; also the number of persons aided from private sources, and any other information which, in his opinion, might promote the purpose of the inquiry. This report was made December 15, 1916, and is full of detailed information on this subject.

Chapter 157 of the Resolves of 1916 provided for the appointment of Special Recess Commission on Social Insurance, to study the effects of sickness, unemployment and old age in Massachusetts, to collect facts as to actual experience with the several forms of insurance therefor, and to recommend to the General Court such legislation as it might deem practicable and expedient to protect the wage-earners of the Commonwealth from the burdens of sickness, unemployment and old age, or any one or more of these. Subsequently, the duty of making a further special investigation was laid upon the Commission by Chapter 164 of the Resolves, approved June 2, 1916; namely, the subject of reasonable restrictions in the hours of labor in industries operated continuously for twenty-four hours, and to make such recommendations and drafts of proposed legislation as it might deem practicable. The report of this Commission, which was very voluminous, was presented to the General Court in January, 1917, and is known as House Document No. 1850.

A Joint Special Committee on Workmen's Compensation Insurance Rates and Accident Prevention was appointed under joint order of the Senate and House of Representatives, adopted June 2, 1916.

The purpose of the Legislature in providing for the appointment of the committee was outlined in its order as follows:

> . . . to investigate the subject-matter contained in the message of his Excellency the Governor, printed as Senate Document No. 444, with special reference to the problems of rate making and accident prevention under provisions of Chapter 751 of the Acts of the year 1911, known as the Workmen's Compensation Act, and acts in amendment thereof and in addition thereto.

The Committee made its report in February, 1917, Senate Document 370.

We next come to the address of his Excellency, the Governor, of January, 1917, in which he urged upon the Legislature the consideration of certain forms of social insurance, and specifically recommended the establishment of a compulsory system of Health Insurance which should include members of the family and also urged that an annuity should be paid by the State and its subordinate governments without contribution to its deserving citizens seventy or more years of age who do not have children able to support them nor an income of more than $200 a year, and who have been residents of the Commonwealth at least ten years.

Under Chapter 130, May 25, 1917, a special Commission was appointed, which is now sitting, known as the "Commission on Social Insurance," for the purpose of further investigating the extent to which poverty occasioned by sickness may be alleviated, medical care for wage-earners and others of limited means may be provided, and measures to prevent disease may be promoted, by insurance. The Commission is to undertake such investigations as to the health of wage-earners and the conditions under which they work, and as to existing systems of mutual, stock, fraternal, state and other forms of insurance in this Commonwealth and elsewhere as may be necessary to provide a sound basis for its recommendations, and is to submit a report, including drafts of any legislation which it may recommend to the next General Court, not later than the fifteenth day of January next.

The Committee has referred, perhaps, at too great length, and perhaps inadequately, to the investigations, past and present, of these subjects by the Legislature, not for the purpose of proposing any inquiry into the merits of these propositions, but to make it clear that through many years and at great expense, the General Court has provided for a careful study of the many intricate questions involved in the general subject of Social Insurance. It would, therefore, seem highly inexpedient that the suggestion of unconstitutionality should be permitted to attach to any measure the General Court may see fit to pass as a result of its prolonged and repeated investigations of the subject.

In Chapter I, the Legislative Power, Section I, The General Court, Art. IV, is found the following language:

> And further, full power and authority are hereby given and granted to the said general court, from time to time to make, ordain, and establish, all manner of wholesome and reasonable orders, laws, statutes, and ordinances, directions and instructions, either with penalties or without, so as the same be not repugnant or contrary to this constitution, as they shall judge to be for the

good and welfare of this commonwealth, and for the government and ordering thereof, and of the subjects of the same, . . .

This article has been amended as follows:

In 1821, Art. 2, by giving the General Court power to create municipal government.

In 1912, Art. 41, giving the General Court the power to prescribe certain methods of taxation for wild lands. In 1915, Art. 44, giving the General Court the right to impose a tax on incomes at different rates on different kinds of property.

It is not easy, and perhaps is not wise, in the absence of knowledge of what may be done with other parts of the Constitution, to attempt more than to follow, in a general way, the form of the amendments above referred to. The Committee submits to the Convention, first, a general amendment which is believed to cover the various propositions referred to it, and, second, different amendments, each dealing with a specific subject.

General Amendment.

The General Court shall have power to establish systems of social insurance, including old-age pensions or insurance, pensions for physical disability arising from any cause, health insurance, maternity benefits, insurance against unemployment, and compensation to workmen or their dependents for injuries incurred by workmen in the course of or arising out of their employment. It may provide for medical care as well as a money payment and may require that the cost of any such system or systems shall be borne in whole or in part by the State or any civil division thereof or by the insured or by the employer. It may provide that claims may be adjudicated with or without a jury and that employers contributing to the compensation of injured workmen or their dependents shall not be liable to any other claims for loss or injury.

Workmen's Compensation.

The General Court shall have power to establish a system of compensation to workmen or their dependents for injuries incurred by workmen in the course of or arising out of their employment. It may provide for medical care as well as a money payment and may require that the cost of such compensation shall be borne in whole or in part by the State or any civil division thereof or by the employer. It may provide that a contributing employer shall not be liable to any other claim for loss or injury and that claims may be adjudicated with or without a jury.

Health Insurance.

The General Court shall have power to establish systems of health insurance, including maternity benefits. It may require that the cost of such pension or insurance shall be borne in whole or in part by the State or any civil division thereof or by the insured or by the employer.

Insurance Against Unemployment.

The General Court shall have power to establish systems of insurance against unemployment, and may require that the cost of any such insurance shall be borne in whole or in part by the State or any civil division thereof or by the insured or by the employer.

Old-Age Pensions and Pensions for Physical Disability.

The General Court shall have power to establish systems of old-age pensions and of pensions for physical disability arising from any cause, and may require that the cost of any such system shall be borne in whole or in part by the State or any civil division or by the beneficiary or by the employee.

Charles G. Washburn,
For the Committee.

MINORITY REPORT.

While I concur with the majority of the Committee in all other respects, I feel bound to dissent from its recommendations and so it becomes my duty to state my reasons therefor.

The members of our Committee were unanimous in the conclusion that if there is any doubt about the present power of the Legislature to act fully and freely in the field of Social Insurance, then we ought to recommend an amendment or amendments which would remove such doubt. We were also unanimous in the opinion that we should not include in such amendment or amendments any detail or specific matter which changing conditions might render of temporary application only. The power of Congress to deal as broadly as it has with interstate questions under the Federal Constitution is found in the absence of such detail and specific matter, and in the broad, general language of that instrument. Changing needs are most easily met under such a Constitution.

Therefore concurring as I do with the expressed opinions of the majority of the Committee on these points, I must be consistent and make my recommendations accordingly, so I recommend the adoption of the following amendment to the Constitution:

Amendment.

Full power and authority is hereby vested in the Legislative Department to establish any system or systems of pensions, compensation or insurance for the reward, relief or protection of any person or persons and to make any provision for such fund or funds as may be required therefor.

Respectfully submitted,
John D. W. Bodfish.

A STATE TUBERCULOSIS WAR PROGRAM.

AN OUTLINE OF PROGRAM SUBMITTED BY THE SUB-COMMITTEE ON THE TUBERCULOSIS WAR PROBLEM OF THE ILLINOIS STATE COUNCIL OF DEFENSE.

The Sub-Committee on the Tuberculosis War Problem of the Illinois State Council of Defense shall consist of one member from each county in the state, with one or more members from each of the larger communities. The member from each county shall be known as the county chairman for his county, and shall be authorized to select the members of a county sub-committee, which will be charged with the work of preparedness required in the particular county.

The Program.

I. Increasing the Appreciation on the Part of the Military Authorities and the Public as to the Importance of Tuberculosis as a Wartime Problem.

(*a*) The preparation of a brief on the importance of tuberculosis in the present war, including all available information relative to the experience of the warring nations of Europe, together with the means these nations have adopted to suppress and control the disease.

(*b*) Placing this circular in the hands of the state military authorities.

(*c*) Distribution of this circular as a means of arousing interest among civil public officials and those interested in tuberculosis work in the various communities.

II. *The Development of Anti-Tuberculosis Machinery in Each County in Illinois.*

(*a*) The creation of a county sub-committee on the Tuberculosis War Problem in each county of the state, of which the county chairman shall be chairman.

(*b*) Increasing the facilities of all existing anti-tuberculosis organizations now operating dispensaries and visiting nurse service.

(*c*) The development of dispensaries and visiting nurse service in all local tuberculosis organizations now organized, but relatively inactive.

(*d*) The creation of organization in all counties in which there is no tuberculosis organization and the immediate development of medical, dispensary and nursing service.

(*e*) Securing the coöperation of the State Medical Society and the county medical societies in the development of county dispensary and nursing service.

(*f*) Urging the State Department of Public Health immediately to establish its proposed Bureau of Tuberculosis; to establish standards of nursing, dispensaries and diagnosis for the various counties, and otherwise to coöperate in the plan of preparedness for the wartime tuberculosis problem.

(*g*) Urging the Illinois Tuberculosis Association to coöperate in the plan and to stimulate its affiliated local organizations to greater activity.

(*h*) Assisting in the financing of local tuberculosis preparedness by calling upon public-spirited and patriotic persons to support county organizations, and by urging county authorities, city councils and boards of education to finance visiting nursing and dispensary service so far as the laws will permit.

(*i*) That counties which have voted favorably upon the establishment of county tuberculosis sanatoria be urged to appropriate the funds necessary for nursing and dispensary service, such work to be carried out under the direction of the County Sanatorium Boards.

III. *Improvement in Methods of Examining Recruits.*

(*a*) Bringing to the attention of the Adjutant General and of the Surgeon General the importance of tuberculosis in the present war.

(*b*) The recommendation to military authorities of a list of "danger signals" or evidences suspicious of tuberculosis which should cause the recruit to be subjected to special and thorough examination.

(*c*) Tendering to the state military authorities the services of a volunteer organization made up of physicians expert in the diagnosis of early tuberculosis, whose services will be available upon demand.

(*d*) The recommendation to the Adjutant General and to the Surgeon General of more leisurely reëxamination of enlisted men in mobilization camps while still under the jurisdiction of the state.

IV. *Closer Scrutiny to Detect Frankly Tuberculous Recruits.*

(*a*) Recommendation to the Adjutant General and the Surgeon General to inquire as to the previous tuberculosis of the recruit or the history of diseases akin to tuberculosis or those frequently confused with tuberculosis.

(*b*) The collection of complete data as to all cases of tuberculosis, all deaths from tuberculosis and all tuberculosis history associated with those of enlisting age and placing same in the hands of recruiting officers.

(*c*) Encouraging the enforcement by local health officials of the existing rule of the State Department of Public Health requiring the reporting of all cases of tuberculosis by physicians.

V. *Establishment of Tuberculosis Hospitals and Sanatoria.*

(*a*) Selection in each county of isolated wards in general hospitals, to be conducted by those experienced in the care of tuberculosis, for returned soldiers actively sick with the disease.

(*b*) Selection in each county of a suitable tract of land and arrangement for water supply, sewage disposal and other sanitary installation which may be utilized when required, with temporary buildings, as camps or colonies for the tuberculous.

(*c*) Ascertaining the facilities of existing sanatoria, in or convenient to the various counties, to care for the increased tuberculosis of modern warfare.

(*d*) The speeding up of county sanatoria already voted in the several counties.

VI. *Control of Tuberculosis in the Civil Population.*

(*a*) Urging public and private charity organizations to increase allowances for relief in proportion to the buying power of money.

(*b*) Coöperation in all plans of food conservation and in encouraging food production by the poorer people.

(*c*) Coöperation with employers, especially those whose factories are under greater pressure due to war, for the improvement of factory conditions and looking toward periodic physical examination of employees.

(*d*) Recommendation to military authorities that returned tuberculous soldiers be not discharged from service until after the active disease has subsided.

VII. *Creation of Medical Forces to Meet the Problem.*

(*a*) Recommendation that physicians and nurses engaged in public tuberculosis work withhold themselves from military service until an urgent need may arise.

(*b*) That one physician, designated by the county medical society of each county, shall give special study and attention to the early diagnosis and treatment of tuberculosis.

(*c*) That training schools for nurses include the nursing of the tuberculous and visiting nursing service in their curricula.

(*d*) That all well-established dispensaries be utilized for the teaching of the early diagnosis of tuberculosis, and that medical students and physicians be encouraged to seek such instruction.

(*e*) That instruction in elementary social service and in tuberculosis be given to public-spirited lay women, that their services may be utilized in times of emergency.

APPOINTMENTS.

Johns Hopkins University.—The following changes have been made in the staff of the department of anatomy of the Medical School: *Dr. Florence R. Sabin* has been promoted from associate professor of anatomy to professor of histology; *Dr. Lewis H. Weed*, from associate to associate professor in anatomy, and *Dr. Charles C. Macklin*, from instructor to associate. *Professor O. Van der Stricht*, of the University of Ghent, becomes lecturer in anatomy. *Dr. Edmund V. Cowdry*, associate in anatomy, has resigned to accept the professorship of anatomy in the Peking Union Medical College which is now conducted by the Rockefeller Foundation of New York. *Dr. Eldon W. Sanford* becomes assistant in anatomy.

RECENT DEATH.

George Stanculeanu, a Rumanian physician, who had been in this country for a number of months on behalf of the Rumanian Government, died on July 16, at Stamford, Conn. Dr. Stanculeanu was laryngologist to the King and Queen of Rumania and was very successful in his native country. Upon the invasion of the German army, he was compelled to flee, leaving everything behind him. He and his wife were later sent to this country on a mission by the Rumanian government. He suffered from a mental breakdown, and pneumonia caused his death. His widow survives him.